

Thoughts of Leaving: An Exploration of Why New York City Middle School Teachers Consider Leaving Their Classrooms



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**The Research Alliance for
New York City Schools**

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EXECUTIVE SUMMARY

Each year, thousands of public school teachers in New York City leave their teaching positions. Schools frequently lose 18 percent to 20 percent of their teachers each year. The rate of teacher turnover has captured the attention of policymakers because of the direct and indirect costs of turnover. When teachers leave, they must be replaced, which may require recruiting and providing professional support for new teachers. These new teachers may be less experienced than those they replace, and novice teachers may need several years to hone their craft. Moreover, the departure of teachers can disrupt the functioning of a school, and affect the experiences and performance of other teachers in the building.

This report is part of a three-year, mixed-methods study of teacher turnover in New York City middle schools. The study, conducted by the Research Alliance for New York City Schools (RANYCS), with the generous support of the Ford Foundation, seeks to inform policymakers and the public about the conditions under which middle-school teachers in New York City leave their schools, and the consequences of this turnover. The focus on middle schools stems from the widely-held view that the middle grades are a critical turning point in the lives of children, and that many New York City schoolchildren lose academic momentum in these grades, setting them on trajectories of failure as they move towards high school and life beyond it.

This report is based on a survey of more than 4,000 full-time middle school teachers working in 125 of the nearly 200 middle schools in New York City serving children in grades six through eight in the 2009-10 school year. The participating teachers, surveyed in May and June of 2010, reported whether they had considered leaving their current school or leaving teaching during that school year, and the reasons that they considered leaving. The report links their responses to teachers' reports about their own backgrounds and experiences, to the demographic characteristics of the schools in which they teach, and to the collective perceptions of all of the teachers in a school about that school as a workplace.

Overall, 39 percent of the participating teachers reported that they had considered leaving their current school or leaving teaching during 2009-10. Although some schools had higher concentrations of teachers thinking about leaving than did others, the variation among teachers within a school in their thoughts of leaving was far greater than the variation from one school to the next.

We find that individual teacher characteristics—factors such as teacher experience, pathway into teaching, family status, teaching a new subject, and commuting distance—are associated with teachers' thoughts about staying or leaving, as are a small number of structural features of the school, such as school size, the concentration of Black and Hispanic students, and the school's poverty and suspension rates. Taken individually, features of the school as a workplace, such as teachers' reports of principal leadership, their ratings of school disorder, the adequacy of resources, and the quality of induction predict whether teachers are likely to

consider leaving, even after individual teacher characteristics and school characteristics are taken into account. We also find that teachers in schools where most teachers receive encouragement from their friends and family to stay, and those in schools where most teachers think that they are effective, are less likely to consider leaving. But because desirable workplace factors tend to cluster in schools, it is difficult to isolate which ones matter most.

When asked to report the importance of different factors in their consideration of leaving their current schools, many teachers pointed to problems with student discipline and motivation and a lack of support from school administration. But a dozen other factors were rated as important or very important by at least one-quarter of the teachers considering leaving their current classroom. Teachers thinking about leaving teaching as a career reported considerable dissatisfaction with the profession, and a desire to pursue positions in education outside of the classroom. Factors such as wanting a more prestigious job, wanting to work closer to home, wanting better health or retirement benefits or other family or personal reasons were important to small subsets of teachers, but were not widely viewed as important.

Our conclusions align with those of several other studies of teacher turnover and retention. Taken together, school organizational factors do not stand out in importance, because the organizational and workplace measures derived from the teacher survey often are highly correlated with one another. But when these factors are considered one at a time, over and above the influence of individual teacher characteristics and school demographic factors, most of them did appear influential. These analyses, coupled with what teachers told us about the factors which were important to them in considering leaving their classrooms, suggest that principal leadership and school disorder are the two best candidates for school improvement strategies to reduce unwanted teacher turnover.

Our other major conclusion is that the rhythm of teachers' lives has considerable influence on whether teachers consider leaving their current classrooms. Factors such as the pathway into teaching, a teacher's stage in the teaching career, a teacher's family and economic status and his or her teaching assignment all predict thoughts of leaving. These factors suggest the importance of mentoring and professional development initiatives, particularly for novice teachers, and the importance of ensuring a good match between a teacher's pedagogical background and his or her current teaching assignment.

II. THOUGHTS OF LEAVING: AN EXPLORATION OF WHY NEW YORK CITY MIDDLE SCHOOL TEACHERS CONSIDER LEAVING THEIR CLASSROOMS

Each year, thousands of public school teachers in New York City leave their teaching positions. Some transfer to other schools in the New York City school system; others move to schools in other parts of New York, or surrounding states. A small number move into administrative positions in their current schools, whereas others assume administrative positions elsewhere in New York City. Finally, some teachers leave teaching, and the education field, behind, turning to new careers or, in the case of some highly-experienced teachers, to the rewards of retirement. A fraction of those who step away from teaching in New York City may return later.

The net consequence of these patterns of teacher mobility is that many of the teachers who are in a school in a given year will not be there the next year. Nationally, 84 percent of public school teachers remain in their school from one year to the next; of the remainder, one-half move to another school, and the other half are no longer in the classroom.¹ The rate of teacher turnover is widely recognized to be higher in large urban school districts than in other school districts.² In New York City, schools frequently lose 18 percent to 20 percent of their teachers each year.³ For a school with 45 full-time teachers—the size of the average middle school in New York City—this represents approximately nine teachers who would need to be replaced annually.

A certain amount of turnover is inevitable, and perhaps even desirable. Even high-functioning schools with committed and engaged teachers can be expected to lose 10 percent of their teachers each year.⁴ Teachers may leave teaching for personal reasons that are beyond the reach of education policy, as when they near retirement age, or choose to step away from teaching to devote their time to childrearing. Moreover, there may be conditions under which a school would be better off if particular teachers were to depart.⁵ A teacher who struggles to keep up with the demands of the job, even with appropriate peer and administrative support, or who is not well-integrated into the school's professional community, may simply not be a good fit for a school.

Nevertheless, high rates of teacher turnover typically are construed as a problem worthy of policymakers' attention, for several reasons. First, there are direct costs associated with teacher turnover. When a teacher leaves a school, there may be separation costs, followed by the costs of recruiting a new teacher and providing the professional development needed to orient the new teacher to the school's policies and practices.⁶ This professional development, including staff time and materials, may be particularly intensive if the newly-hired teacher also is new to the profession. Although these costs may be difficult to estimate precisely, scholars have estimated these costs of replacing a teacher to be approximately \$15,000 per teacher.⁷

There may be other direct costs to teacher turnover as well, although translating them into dollar amounts may not be feasible. In many instances, a departing teacher will be replaced by a teacher with less experience, and it is well-known that there is a steep learning curve for novice teachers, who generally are not very skilled at the practice of teaching at the onset of their careers.⁸ Thus, students may learn less when taught by a novice teacher who replaces a more experienced teacher. A school obliged to replace experienced teachers with inexperienced teachers may suffer a decline in student achievement.

There also are indirect costs to teacher turnover, in the form of disruptions to the school as a community of professionals working together to advance the learning and development of the children and youth they serve. Increasingly there is a recognition that teachers do not work in isolation from one another, and that a school's success depends on the collective efforts of its members in ways that go beyond the sum of the individual parts.⁹ Teachers can support one another in the development of a coherent curriculum across school subjects and grades, working in concert on problems of practice. But these kinds of collaborations take time to develop; teachers must trust one another to be willing to work together, and this trust is built up via extended interactions among teachers over time.¹⁰ When a teacher leaves and is replaced by a new teacher, the stock of "social capital" in the school is reduced until this reservoir of trust is replenished. In schools with high rates of turnover each year, it may be extremely difficult to accumulate the social capital which serves to bind teachers to their community, and which can support growth in student learning.¹¹ Evidence of the importance of this social capital can be found in the fact that the academic achievement of fourth- and fifth-graders in New York City taught by teachers who stay in a school declines when other teachers in the same grade leave, especially in schools with low average achievement.¹²

This report is part of a three-year, mixed-methods study of teacher turnover in New York City middle schools. The study, conducted by the Research Alliance for New York City Schools (RANYCS), with the generous support of the Ford Foundation, seeks to inform policymakers and the public about the conditions under which middle-school teachers in New York City leave their schools, and the consequences of this turnover. The focus on middle schools stems from the widely-held view that the middle grades are a critical turning point in the lives of children, and that many New York City schoolchildren lose academic momentum in these grades, setting them on trajectories of failure as they move towards high school and life beyond it.¹³

The first phase of the project, led by Dr. Will Marinell of RANYCS, relied on New York City administrative data spanning the years 2001 to 2010 to examine patterns of teacher turnover in the 196 "true" middle schools opened before 2005 and serving grades 6-8 in New York City in 2009.¹⁴ A key finding is that most teachers who are newly-arrived to New York City middle schools do not stay long. On average, more than one-quarter of New York City teachers who began teaching in a particular middle school left that school within one year; more than one-half had left within three years, and two-thirds had departed within five years. Approximately 40

percent of the middle school teachers who leave their schools transfer to other New York City public schools, whereas the remaining 60 percent were no longer employed in the New York City public school system the year after leaving.¹⁵

The administrative data indicated that older teachers and inexperienced teachers were more likely to leave their schools within three years than younger teachers and highly experienced teachers. Teachers in small middle schools left within three years at higher rates than teachers in larger middle schools, but many other attributes of middle schools—their student poverty rates or student achievement levels, for example—were weakly associated with the probability that a teacher would leave the school within three years. Turnover rates were significantly higher in Manhattan and the Bronx than in the other boroughs of the city, with teachers in Staten Island middle schools least likely to leave within three years of their arrival.

The second phase of the project is described in this report. It is based on a survey of more than 4,000 full-time middle school teachers working in 125 of the nearly 200 middle schools in New York City serving children in grades six through eight in the 2009-10 school year. The participating teachers, surveyed in May and June of 2010, reported whether they had considered leaving their current school or leaving teaching during that school year. The report links their responses to teachers' reports about their own backgrounds and experiences, to the demographic characteristics of the schools in which they teach, and to the collective perceptions of all of the teachers in a school about that school as a workplace.

The study's third component, directed by Dr. Jennifer Goldstein of Baruch College, studies four middle schools serving high-need student populations in close detail. These case studies, relying on interviews with teachers and administrators and extensive observation in these schools, will help us gain a better understanding of the extent to which teachers and school administrators perceive turnover as a cause or consequence of their schools' operational functioning. Further, the case studies will examine schools' strategies for recruiting, developing and retaining effective teachers and for limiting turnover's damaging consequences.

III. THE CURRENT STUDY

This report has two parts. In the first section, we describe the characteristics of the teachers who report considering leaving their schools and/or leaving teaching, and the characteristics of the schools in which they teach. These descriptive patterns then are adjusted for the fact that teachers' characteristics and school characteristics are correlated with one another, as when teachers who enter teaching through an alternate route are less experienced on average than teachers who entered via traditional certification, or when schools with high concentrations of Hispanic students also have a high proportion of English language learners. The overall and adjusted differences among different types of teachers and different types of schools in considering leaving provide some clues about where policymakers might direct their attention in order to reduce the high rates of teacher turnover in New York City middle schools. But because teachers are not randomly assigned to schools, we are unable to make claims about cause-and-effect relationships for teacher and school characteristics.

In the second section, we analyze the reasons that teachers give for why they are considering leaving their schools and/or leaving teaching. We display the relative importance of these factors overall, and for particular groups of teachers identified as at high risk of leaving in the first section. We conclude with some directions for future research and policy.

To foreshadow our results, we find that individual teacher characteristics—factors such as teacher experience, pathway into teaching, family status, and teaching a new subject—are associated with teachers' thoughts about staying or leaving, as are a small number of structural features of the school. Taken individually, features of the school as a workplace, such as teachers' reports of principal leadership, predict whether teachers are likely to consider leaving, even after individual teacher characteristics are taken into account. But because desirable workplace factors tend to cluster in schools, it is difficult to isolate which ones matter most. This pattern suggests both the promise and the challenge of developing new policies and practices to enhance teacher retention in New York City middle schools.

IV. METHODOLOGY

In the spring of 2010, researchers contacted the principal at each of the 196 "true" middle schools in New York City serving only grades 6 through 8. Of the 196 principals, 125 agreed to allow researchers to survey full-time teachers in their schools, a school-level response rate of 64 percent. In the vast majority of instances, teachers completed the paper-and-pencil survey in a group setting on a day when students were not in the building, with a member of the research team distributing and collecting the surveys. Survey administrators left blank surveys and self-addressed stamped envelopes at the school for full-time teachers who were not present at the survey administration. In a few schools, the principal did not permit a group administration, but allowed the survey administrator to place blank surveys and self-addressed stamped envelopes in the school mailboxes of full-time teachers. In 116 schools, at least 10 teachers completed the survey. The total number of full-time New York City middle school teachers who responded to the survey is 4,214, representing 42 percent of the estimated population of teachers in New York City's true middle schools at the time of the survey. Within schools that allowed us to administer surveys to teachers in a group administration, we surveyed 79 percent of the full-time teachers.

The bulk of this report is based on teachers' responses to a series of questions about their future plans.¹⁶ The first of these is whether the teacher had considered leaving his or her school during the current school year. Teachers could respond "yes" or "no." Teachers who responded "yes" were then asked to rate the importance of 14 different factors in their consideration of leaving the school.

The second question parallels the first, but pertains to whether the teacher had considered leaving teaching during the current school year. Teachers who responded "yes" then rated the importance of 12 different factors in their consideration to leave teaching. In both cases, the factors were based on previous research on teacher turnover, and different factors were listed for the two types of plans.

Considering leaving a school is not the same as actually leaving. Many of the teachers who gave thought to leaving may not leave at all, although evidence from North Carolina and from this study shows that schools with high numbers of teachers who are planning or considering leaving do have higher rates of actual turnover than other schools. This suggests that considering leaving is more than just a flight of fancy or a reaction to a bad day at the office. Rather, considering leaving represents an important step towards a declining commitment to a school or to teaching as a career.

We begin by describing teachers' responses to the two questions about considering leaving. One-third (33 percent) of the 4,214 full-time middle school teachers who responded to the survey reported that they had considered leaving their school during the current school year. A smaller, but still substantial, fraction—22 percent—reported that they had considered leaving teaching altogether during the current school year. The pattern of responses to both questions

simultaneously is complex..Table 1 shows the four different patterns that teachers reported.

The table indicates that 39 percent of teachers in the study considered leaving their school or leaving teaching altogether during the 2010 school year. The figures in the following sections contrast this 39 percent with the 61 percent who reported that they neither considered leaving their current school nor considered leaving teaching altogether.

Table 1.

Patterns of Thinking about Leaving One's School and Teaching

Pattern of Thinking about Leaving	Percentage of Teachers
Considered leaving neither	61%
Considered leaving teaching only	7%
Considered leaving school only	16%
Considered leaving both	16%
Total	100%

We asked teachers how long they anticipated remaining in their current school: until the end of the school year; for another year or two; for between 3-5 years; for between 6-10 years; and for more than 10 years. Teachers who reported thinking about leaving their school and/or leaving teaching anticipated much shorter careers in their current school. Table 2 shows this association.

Of the teachers who reported considering thinking about leaving their current school, one-quarter expected to leave at the end of the current year, and another 45 percent expected to stay for at most another year or two. Thus, 70 percent of the teachers who reported that they had considered leaving their school expected to be gone within two years. Only 12 percent of these teachers expect to stay in their current schools for more than six more years. Conversely, the teachers who had not considered leaving demonstrate a strong attachment to their current school. Nearly 40 percent expect to remain in their current schools for more than 10 years, and 59 percent expect to remain for another six years or more. Only one in six of the teachers who had not considered leaving their current school anticipated leaving within two more years.

Table 2.***Expected Tenure in School by Considering Leaving Current School***

Expected tenure in current school	Considered leaving current school	
	No	Yes
Until the end of this school year	1%	25%
For another year or two	15%	45%
For between 3-5 years	24%	18%
For between 6-10 years	20%	5%
For more than 10 years	39%	7%

A similar pattern is observed for the association between thinking about leaving teaching and how long teachers anticipate staying in teaching, which is shown in Table 3. Interestingly, a sizeable fraction of teachers who have considered leaving teaching expect to remain teachers for a substantial time. More than one-fifth (22 percent) anticipate continuing to teach for at least ten more years, and just over a third (34 percent) expect to teach for at least six more years. Two-fifths (41 percent) of the teachers who considered leaving teaching expect to stay in teaching for another year or two. The pattern is quite different for teachers who did not consider leaving teaching; these teachers expect to remain in teaching for a substantial amount of time. Sixty percent of the teachers who did not consider leaving anticipate staying in teaching for at least another 10 years, and more than three-quarters (78 percent) expect to continue as teachers for at least another six years. Only 7 percent of the teachers who did not consider leaving teaching anticipate leaving the field within two years.

Table 3.***Association between Considering Leaving Teaching and Expected Tenure in Teaching***

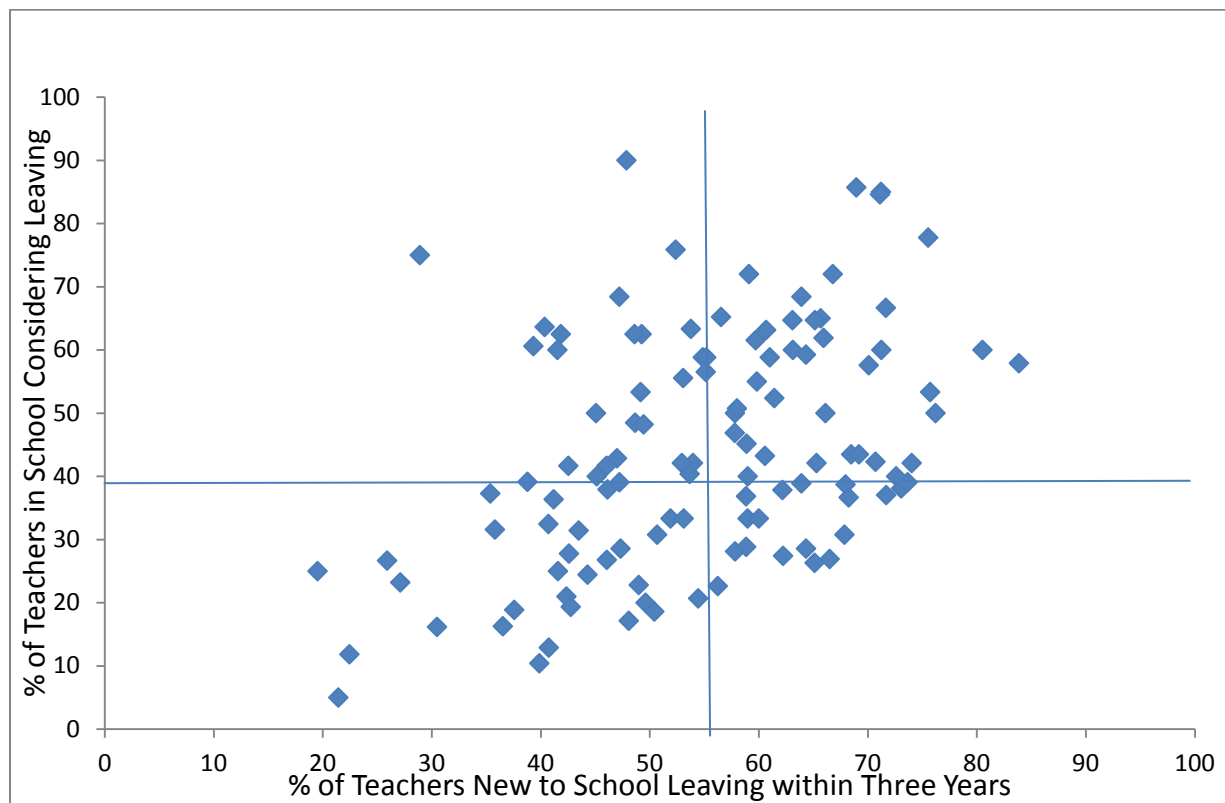
Expected tenure in teaching	Considered leaving teaching	
	No	Yes
Until the end of this school year	1%	12%
For another year or two	6%	29%
For between 3-5 years	15%	25%
For between 6-10 years	18%	12%
For more than 10 years	60%	22%

A final rationale for studying teachers' reports of their thoughts about leaving is that schools' average reports are correlated with actual school-level rates of turnover. This association is displayed in Figure 1, which shows the percentage of teachers in a school reporting

considering leaving and the percentage of teachers new to their building who left within three years, for the 116 middle schools with at least 10 teachers responding to the survey. The correlation between these two measures is $r=.43$, a substantial association; when adjusted for the imprecision in the survey data, due to the relatively small numbers of survey respondents in some schools, the correlation is $r=.33$. Both statistics suggest teachers' reports of thinking about leaving their school and/or leaving teaching should be taken seriously as indicators of teacher turnover.

Figure 1.

Correlation of Actual Three-Year Turnover Rate for Teachers New to Building with Teachers Reporting Considering Leaving (N=116 schools)



V. TEACHER CHARACTERISTICS AND THE PROBABILITY OF THINKING ABOUT LEAVING

In this section, we describe the teachers responding to the survey, and then examine the association between teachers' characteristics and their thoughts about leaving. Table 4 reports the characteristics of the 4,214 full-time middle school teachers who responded to the survey. As the table indicates, most middle school teachers (71 percent) are female, and a majority (56 percent) is white, although there are sizeable numbers of Black and Hispanic teachers (21 percent and 14 percent, respectively.) A majority (57 percent) is currently married or cohabiting with a domestic partner; more than one-quarter (29 percent) have never married, and a small fraction are divorced, separated or widowed. Nearly one-half (48 percent) is legally responsible for a child.

New York City middle school teachers are, on average, highly educated and highly experienced.¹⁷ 93 percent of the teachers in the sample hold a master's degree, and more than one-half have accumulated 30 or more graduate credits beyond that degree. Nearly one-quarter (23 percent) have more than 15 years of full-time teaching experience, and 38 percent have more than 10 years of experience. Only 20 percent of the teachers in the sample have three or fewer years of experience teaching. About three-quarters (74 percent) of these teachers have been certified to teach through the traditional route, with one in six (16 percent) certified via the New York City Teaching Fellows program (NYCTF) and 4 percent certified via Teach for America (TFA). One in five teachers (21 percent) reported that they were teaching students at a grade level they had not taught before, and 13 percent stated that they were teaching students in a subject area that they had not taught before. Taken together, 28 percent of the middle school teachers in the study were teaching either a new grade level or a new subject, each of which may pose challenges due to changes in curriculum and the student population. (We cannot tell whether the teacher or school initiated new assignments).

We also note that a substantial number of the teachers in the sample have roots in New York City, as 38 percent of them are graduates of New York City public high schools. Moreover, there is substantial variation in how far away teachers live from the schools in which they teach. About a third (34 percent) live within 20 minutes of their school, and another third (34 percent) live between 20 and 40 minutes away. This means that one-third of the teachers in the sample live more than 40 minutes away from their schools, with 13 percent traveling more than an hour each way to and from school.

Finally, we describe teachers' perspectives on their own circumstances as teachers (as distinct from what all of the teachers in a building have to say about the school.) Here, we highlight the fact that teachers do not express widespread dissatisfaction with their teaching salaries. To be sure, about one-quarter strongly disagree with the statement "I am satisfied with my teaching salary," and an additional one-quarter disagree somewhat with the statement. But 40 percent agree somewhat that they are satisfied with their teaching salary in New York City, and 8

percent strongly agree.

Table 4.
Description of the Characteristics of Teachers Responding to the Survey (N=4214)

Percentage		Percentage	
<i>Gender</i>		<i>Years of full-time teaching</i>	
Male	29%	0-1 years	3%
Female	71%	1-3 years	17%
		4-5 years	13%
<i>Race/ethnicity</i>		6-10 years	28%
White	56%	11-15 years	15%
Black	21%	more than 15 years	23%
Hispanic	14%		
Asian	4%	<i>Teaching new grade level</i>	
Other race	6%	No	79%
		Yes	21%
<i>Marital status</i>			
Never married	29%	<i>Teaching new subject area</i>	
Domestic partner	9%	No	87%
Married	48%	Yes	13%
Divorced	9%		
Separated	2%	<i>Length of commute to school</i>	
Widowed	2%	20 minutes or less	34%
		Between 20-40 minutes	34%
<i>Number of children</i>		Between 40-60 minutes	20%
0	52%	More than 60 minutes	13%
1	18%		
2	19%	<i>Satisfied with salary</i>	
3 or more	11%	Strongly disagree	26%
		Somewhat disagree	26%
<i>Highest degree</i>		Somewhat agree	40%
Bachelor's degree	7%	Strongly agree	8%
Master's degree	41%		
Master's plus 30 credits or more	50%	<i>NYC public high school graduate</i>	
Doctoral or professional degree	2%	No	62%
		Yes	38%
<i>Teaching pathway</i>			
Traditional certification	74%		
New York City Teaching Fellow	16%		
Teach for America	4%		
Teaching Opportunity Program	1%		
Other alternate certification	5%		

The above figures display the association between teachers' characteristics and their thoughts about leaving. Overall, 39 percent of the teachers in the sample reported that they had considered leaving their school or leaving teaching altogether during the 2009-10 school year. Therefore, groups of teachers with percentages higher than 39 percent are more likely than the typical teacher to have considered leaving, whereas groups with percentages lower than 39 percent are less likely to have done so.

In drawing attention to group differences, we rely on two criteria: whether the group differences are statistically significant when other teacher and school characteristics are taken into account, and whether there is at least an eight percentage point difference between the groups. The first criterion reduces the possibility that the group differences might be due solely to chance, whereas the second encourages attention to differences that are large enough to have some practical importance. If a teacher characteristic doesn't meet these two criteria, we do not display it in a figure. This means that several teacher characteristics receive no further attention: whether a teacher is male or female; a teacher's racial/ethnic self-identification; whether the teacher was teaching students at a grade level that s/he had not taught before; whether the teacher is a graduate of a New York City public high school; and a teacher's satisfaction with his or her teaching salary. None of these teacher factors has a statistically reliable and practically important association with the probability that a teacher thought about leaving his or her current classroom.

For each figure, the left side displays the raw or unadjusted rates of considering leaving one's school or leaving teaching for a given teacher characteristic. The right side shows these rates when they are adjusted for other characteristics of teachers and schools.¹⁸

Experience.

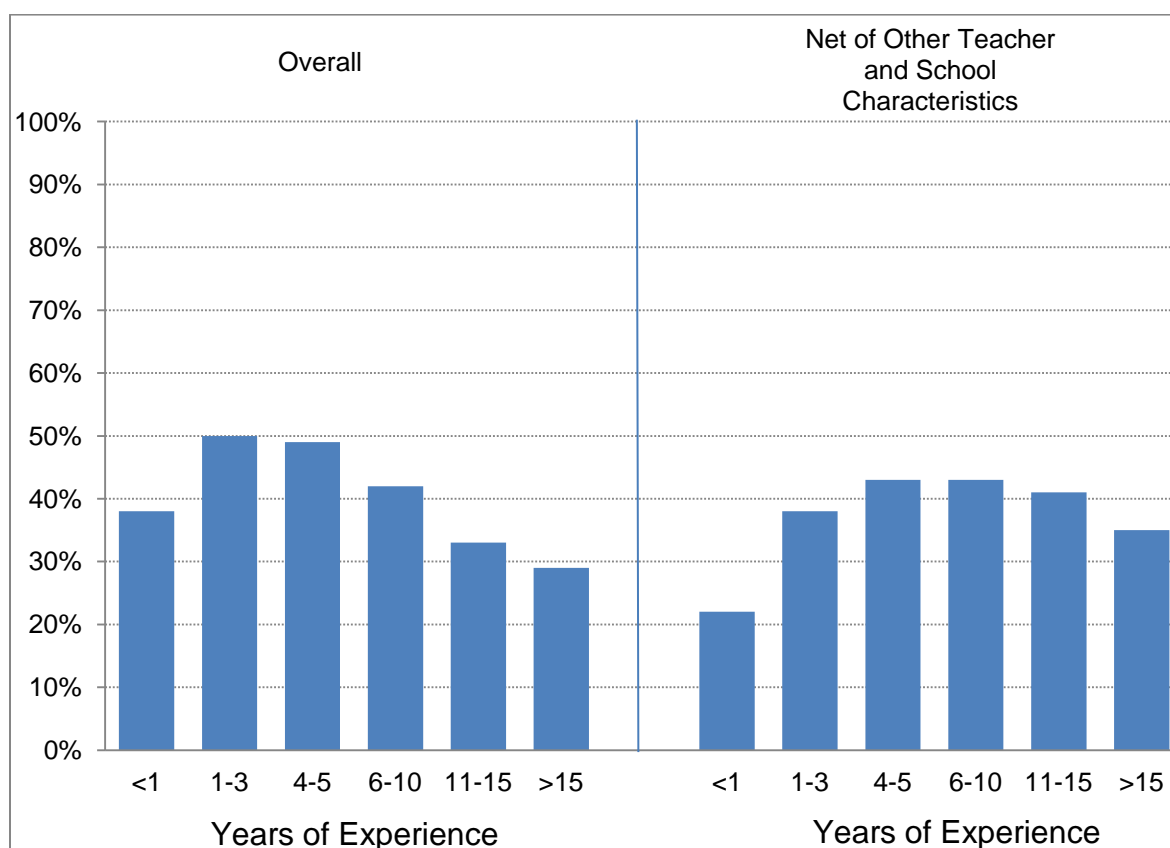
Figure 2a shows that teachers are more or less likely to consider leaving depending on the stage of their teaching career. The left panel shows the overall association between experience and considering leaving. One-half of the teachers in the earlier stages of their careers (i.e., with 1 to 5 years of full-time teaching experience) considered leaving their current school or leaving teaching altogether, whereas the most experienced teachers were least likely to do so (with teachers with more than 15 years of experience having a 29 percent probability of considering leaving.) Teachers with one year or less of full-time teaching experience had an average probability of considering leaving. The shape of this association may represent a blending of two different processes, as the desire to change schools may be more salient earlier in the teaching career than the desire to leave teaching altogether is.¹⁹

The right panel displays the association between experience and considering leaving when other teacher characteristics and school factors are taken into account. The shape of the association differs in two important respects. First, teachers in the earliest stages of their

teaching careers are *less* likely to consider leaving; the adjusted probability for teachers with one year of experience (or less) falls from 38 percent to 22 percent. Second, for those with more than one year of experience, the association between years of experience and the probability of considering leaving flattens out when other teacher characteristics are controlled; the largest difference in the percentages among the five experience categories is only eight percentage points.

Figure 2a.

Percentage of Teachers Considering Leaving by Years of Full-Time Teaching Experience



One possible explanation for the changing shape of the association between experience and the probability of considering leaving one's current classroom is that both factors are associated with another teacher characteristic. For example, roughly two-thirds of the teachers in the sample with less than one year of full-time teaching experience entered teaching through an alternate route (e.g., New York City Teaching Fellows, Teach For America). If pathways into teaching such as NYCTF or TFA are associated with a greater probability of considering leaving,

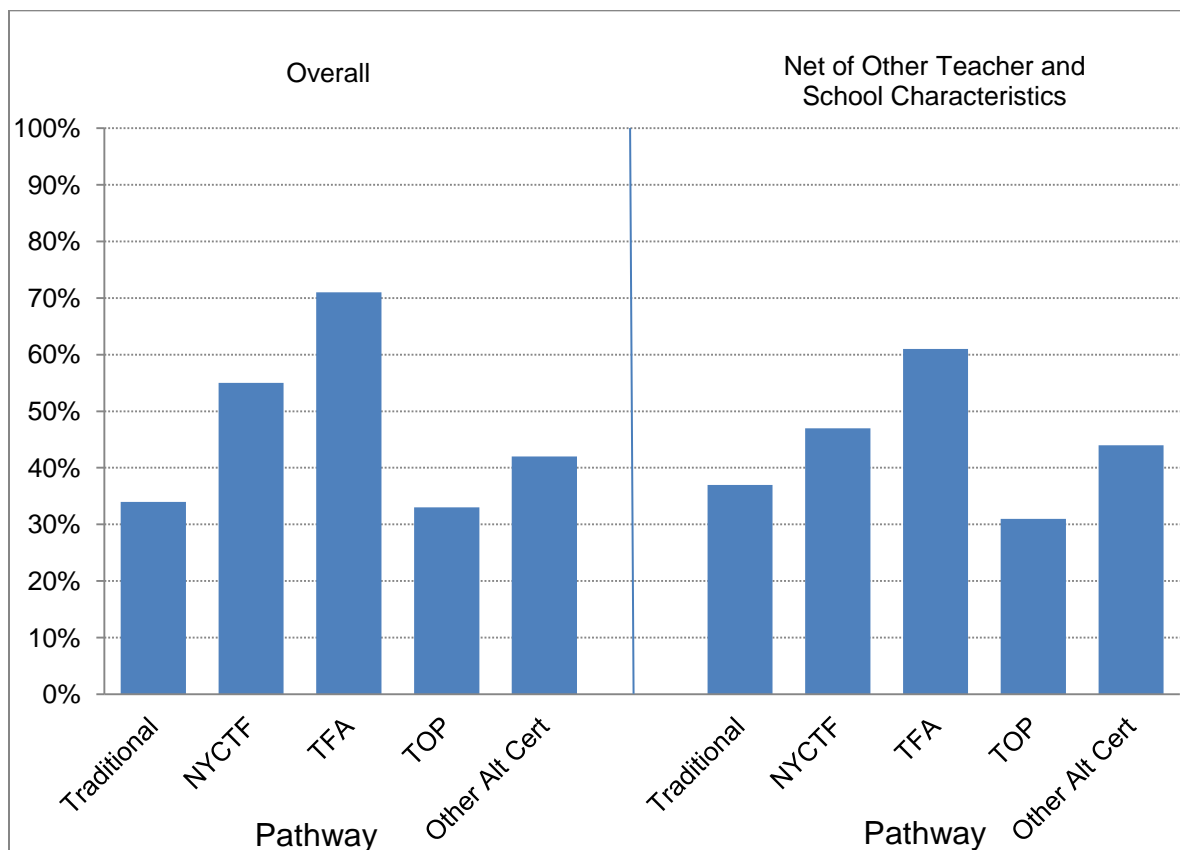
this could account for the pattern shown in Figure 2a.

Pathway into teaching.

As Figure 2b shows, teachers entering teaching via some alternate pathways are much more likely to consider leaving their current classrooms than those who enter via the traditional pathway. Overall, 71 percent of TFA teachers reported considering leaving, as did 55 percent of NYCTF teachers. In contrast, 34 percent of teachers entering teaching via the traditional route report they had considered leaving, as did 33 percent of the teacher entering via CUNY's Teaching Opportunity Program (TOP). Although the differences across these groups shrink when other teacher characteristics and school factors are taken into account, they are still substantial. Net of these other factors, 61 percent of TFA teachers considered leaving, as did 47 percent of NYCTF teachers.

Figure 2b.

Percentage of Teachers Considering Leaving by Pathway into Teaching



The TFA case warrants some discussion, due to the distinctive expectations of the program, and prior evidence that New York City teachers entering teaching via TFA and NYCTF are more likely to leave than teachers prepared via traditional routes.²⁰ TFA corps members, who are mainly culled from the ranks of recent graduates of selective colleges and universities, commit to teach for a minimum of two years in a high-poverty urban or rural school district. One study of three cohorts of TFA corps members found that 60 percent voluntarily remained in a teaching position for a third year after the initial two-year commitment, with a declining rate of persistence over time, estimated at 15 percent continuing for a fifth year in the schools to which they were originally assigned.²¹ Moreover, we know from Marinell's (2011) study that teachers who are new to a school, perhaps because they are new to teaching, have very high rates of leaving their schools. It might appear, then, that the high rate of considering leaving teaching among TFA corps members, and perhaps among NYC Teaching Fellows as well, is due to their status as novice teachers. 73 percent of the TFA teachers in the sample are in their first three years of full-time teaching, a much higher percentage than the other alternate route teachers and traditionally certified teachers in the study. (In contrast, 48 percent of the Teaching Fellows are in their first three years, as are only 12 percent of traditionally certified teachers in the sample.)

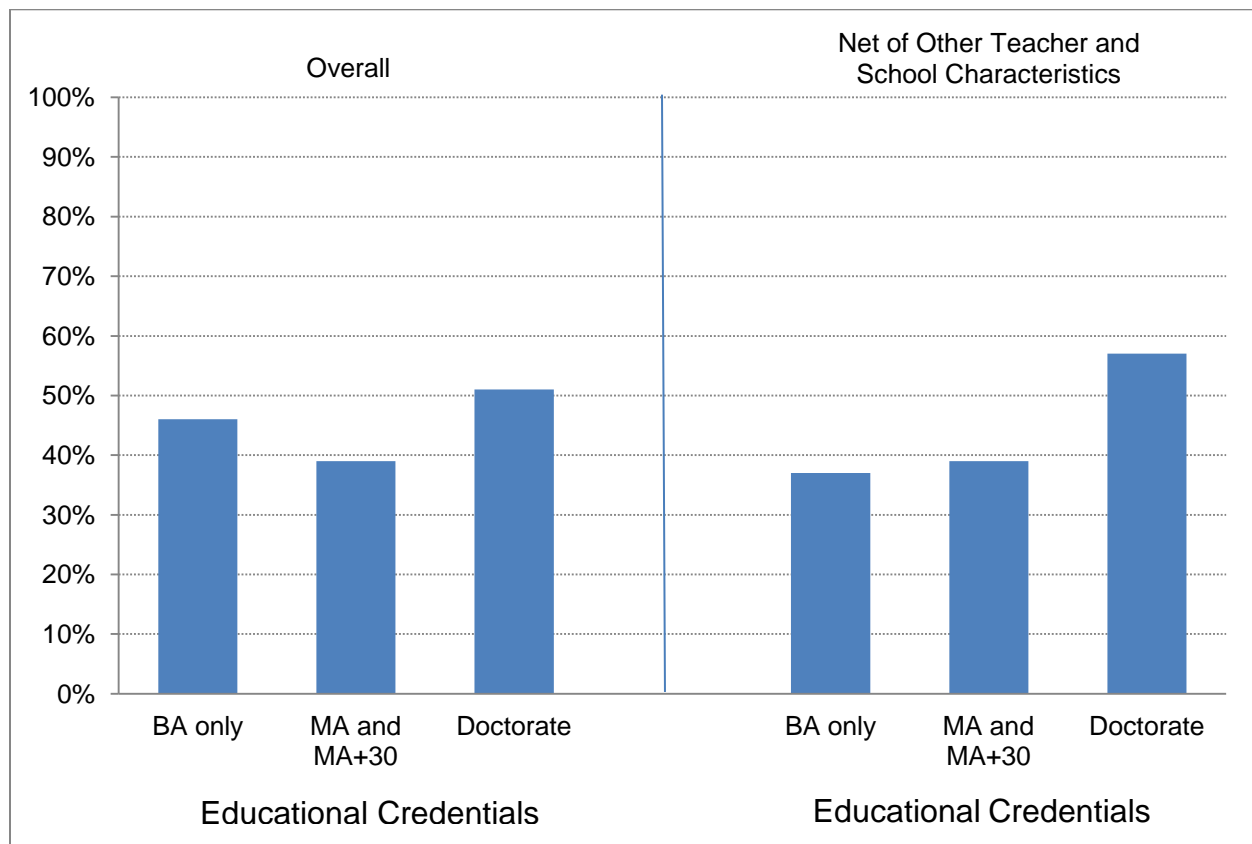
The elevated probability of considering leaving teaching observed among TFA teachers and Teaching Fellows are, however, observed when years of teaching experience are taken into account. This implies that among teachers with any specific level of experience, those entering teaching via an alternate pathway—specifically, TFA, NYCTF and other alternate route programs—are more likely to consider leaving teaching than teachers with traditional certification.

Education.

Teachers' educational credentials are modestly associated with the probability of considering leaving their current classroom. Figure 2c shows that just over one-half of the small number of New York City middle school teachers holding doctorates or first professional degrees considered leaving, whereas those with a master's degree (with or without 30 or more additional graduate credits) had the lowest group probability (34 percent). When other teacher and school characteristics are taken into account, the probabilities for the first two categories converge, and the risk of thinking about leaving rises to 57 percent for the small number of middle-school teachers who hold a doctorate.

Figure 2c.

Percentage of Teachers Considering Leaving by Educational Credentials



Family structure.

Other features of teachers' lives also matter, including their marital status and parenting responsibilities. The association between these family factors and considering leaving are displayed in Figures 2d and 2e, respectively. Figure 2d shows that one-half of the teachers who have never married or who have a domestic partner—together, nearly 40 percent of all teachers—have considered leaving their current classrooms, a much higher proportion than teachers who are currently married (33 percent) or whose marriages have been disrupted by divorce, separation, or the death of a spouse. The differences across marital status are somewhat smaller when other teacher and school characteristics are taken into account, but the rate of considering leaving remains highest for those teachers who have never married, and is lowest among those who have suffered marital disruption (and may be most vulnerable financially as a result.)

The association between parenting responsibilities and considering leaving one's current classroom shown in Figure 2e parallels that found with marital status. We asked teachers how

many children they were legally responsible for. Teachers with no parenting responsibilities were much more likely to consider leaving than were teachers with two or more children (43 percent vs. 29 percent, respectively.) This association persists when other teacher characteristics such as years of full-time teaching experience—a rough proxy for age—and school factors are taken into account; teachers with no parenting responsibilities, who make up more than one-half of the total number of teachers in the sample, think about leaving more frequently than teachers with two or more children. This, too, may be in part due to the financial risks associated with leaving one's current position.

Figure 2d.

Percentage of Teachers Considering Leaving by Marital Status

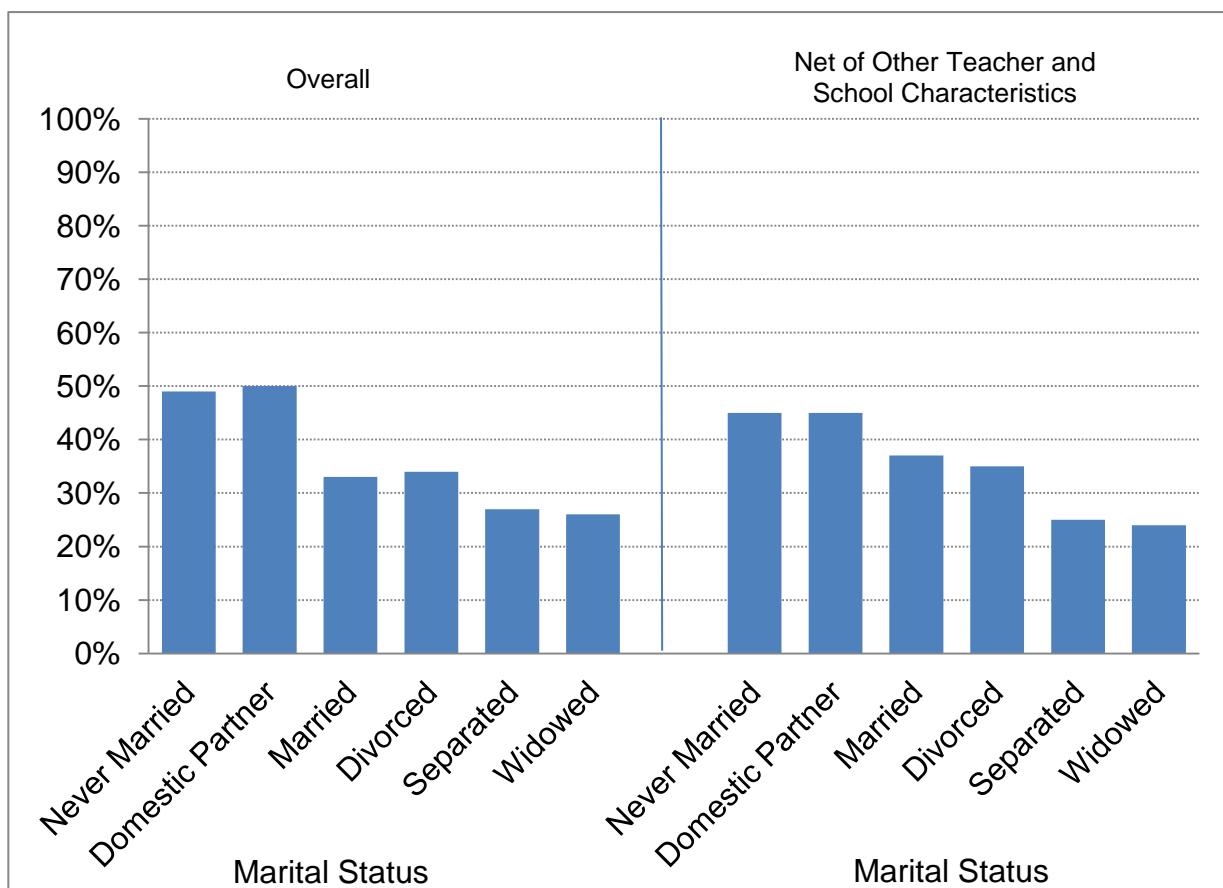
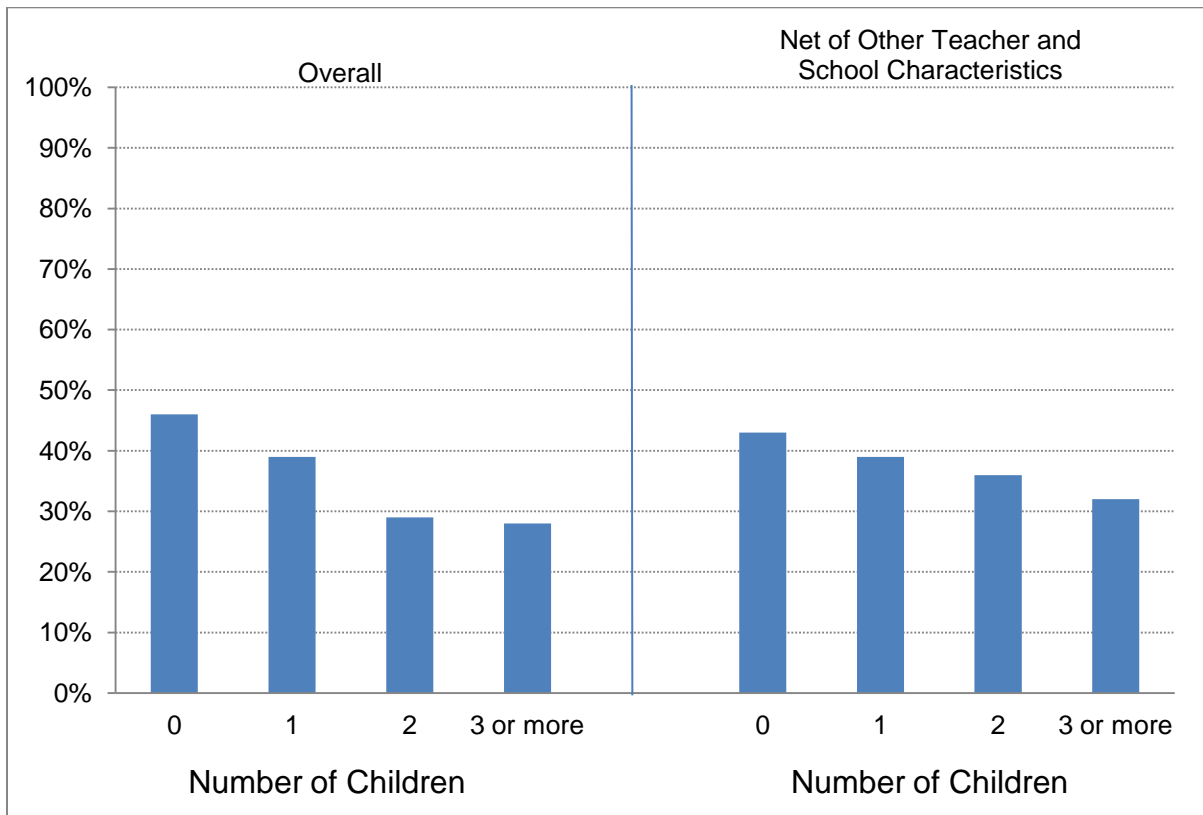


Figure 2e.

Percentage of Teachers Considering Leaving by Number of Children

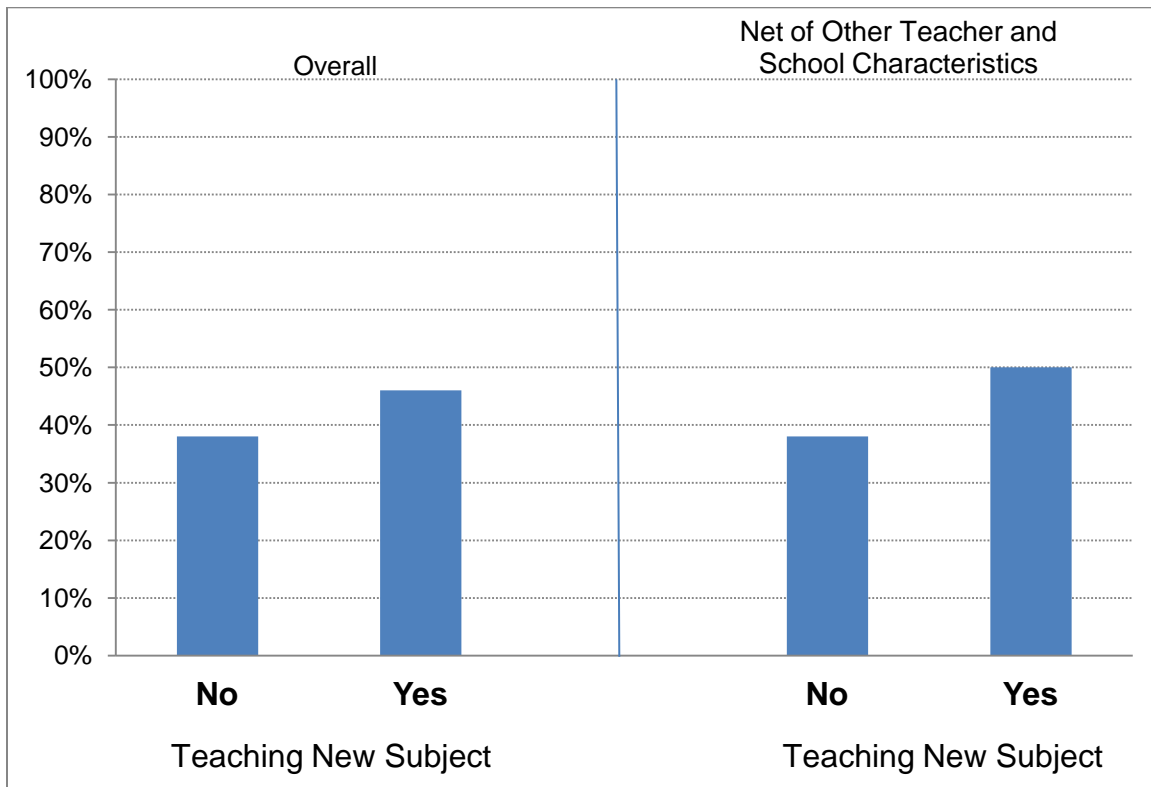


Changes in teaching assignment.

Although teachers who reported that they were teaching a new grade level were no more likely to consider leaving their classrooms than other teachers, we do find that middle school teachers teaching a new subject have a higher probability of thinking about leaving (46 percent vs. 38 percent among their peers). The difference between these two groups increases slightly when other teacher characteristics are taken into account; just under one-half of teachers teaching a new subject report thinking about leaving net of other teacher characteristics.²² This is probably related to how much work a teacher has creating instructional materials, lesson plans, assessments, etc. when teaching a subject for the first time. Each additional year teaching that subject can build on materials and experience from the previous year, which progressively reduces lesson preparation time outside of class. Many skills and concepts in a given school subject repeat year after year, with expectations for student performance rising or falling depending on grade level. Teachers can transfer experience adjusting difficulty and adapting curricula for students at higher or lower levels in a heterogeneous classroom when shifting to a new grade level much more easily than transferring experience to the teaching of a new subject.

Figure 2f.

Percentage of Teachers Considering Leaving if Teaching New Subject

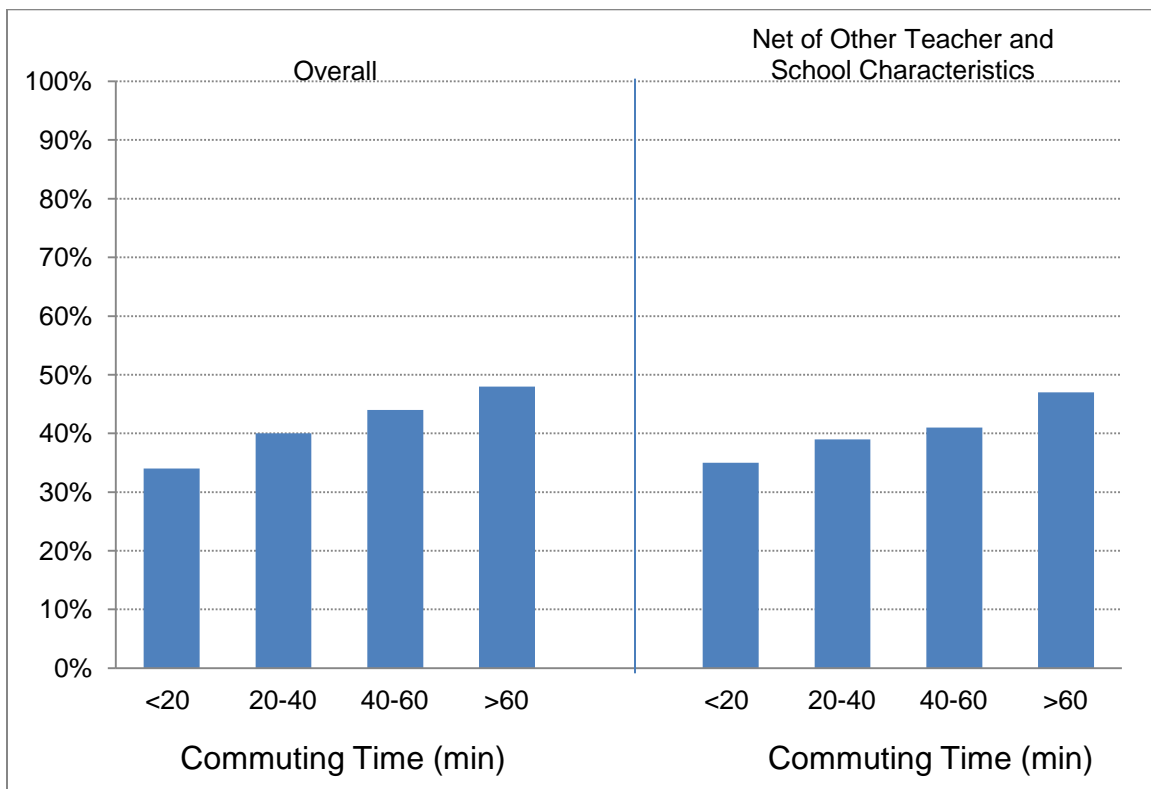


Commute.

The final feature of teachers' experiences we consider is the length of time they commute to and from their schools. Commuting time is one important feature of where a teacher chooses to live and to teach; others include the amenities in the neighborhood in which a school is located, and the desire to live in a particular community, due either to the draw of family or familiarity.²³ Teachers with longer commutes are much more likely to consider leaving their current classrooms than are teachers with shorter commutes; the starkest difference is between teachers with a commute of 20 minutes or less (34 percent) and those with a commute of one hour or more (48 percent). This pattern persists when other teacher and school characteristics are taken into account. Analyses not reported here indicate that commuting time is related to the probability of considering leaving one's current school, but is unrelated to thinking about leaving teaching altogether.²⁴

Figure 2g.

Percentage of Teachers Considering Leaving by Commuting Time



Teacher characteristics summary.

All told, the individual teacher characteristics we consider substantially improve our ability to predict which teachers are likely to consider leaving their current classrooms. One way of judging this is to look at the incremental improvement in the percentage of teachers correctly classified when these characteristics of teachers are taken into account. We know that overall, 39 percent of teachers reported that they considered leaving during the 2009-10 school year, whereas 61 percent of teachers reported that they had not. For the subset of teachers with complete information in the survey, the figures are 41 percent and 59 percent.

If we knew nothing else about a teacher, we could predict that all teachers had not thought about leaving, and we would be right 59 percent of the time. Taking just individual teacher characteristics into account, we can correctly classify 65 percent of the participating teachers as having considered leaving their current classrooms or not. Thus, individual characteristics matter; but there is still a great deal of variation among teachers in their thoughts about leaving which remain unexplained by the characteristics we are able to consider.

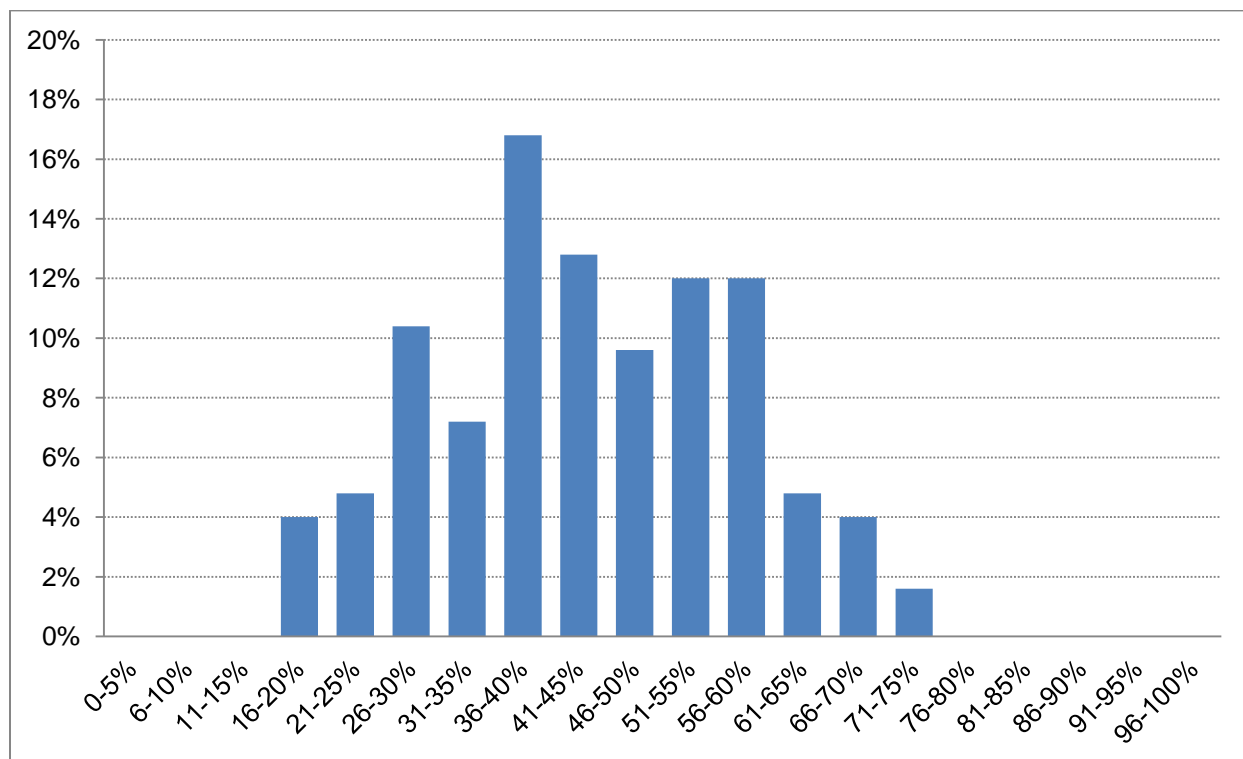
VI. SCHOOL CHARACTERISTICS AND THE PROBABILITY OF THINKING ABOUT LEAVING

Thus far, we have considered the differences among teachers within a given school in the probability they considered leaving. This is a different issue than how much variation there is among different middle schools in the average probability of considering leaving. If most schools have similar rates of teachers thinking about leaving, our attention is drawn to individual teacher characteristics as the most important site for understanding teacher turnover and designing interventions to address it. Conversely, if there are large differences among schools in the average rate of turnover, then the features of schools may be the most promising place for the reform of policy and practice.

Our analyses indicate that there is substantial variation from one teacher to the next in the probability of thinking about leaving in virtually all of the 125 New York City middle schools we examined. There are, to be sure, some middle schools with a cluster of teachers who are thinking about leaving their school or leaving teaching altogether, and at the other extreme some with a preponderance of teachers who report that they have not thought about leaving. This distribution is reported in Figure 3a.

Figure 3a.

Distribution of School-Average Probability of Considering Leaving



As the figure suggests, many schools have similar average rates of teachers thinking about leaving, with the greatest clustering in the range of 36 percent to 60 percent (which captures about two-thirds of all of the schools in the sample.)²⁵

Another way of representing the relative importance of school and teacher characteristics is to consider how much of the variation among teachers in their probability of thinking about leaving might be found in any typical school, and how much of the variation reflects the variation among schools, with some schools having a high concentration of teachers thinking about leaving, and others having a relatively low concentration of teachers thinking about leaving. If every school had exactly 39 percent of its teachers considering leaving, then knowing in which school a teacher is working would not tell us anything about that teacher's probability of considering leaving. In that scenario, school-level demographic and workplace factors would not be informative either, because school-to-school differences in demography and the school as a workplace would not be associated with a school's average probability that teachers considered leaving their school or leaving teaching altogether.

The convention for describing the relative salience of school and teacher characteristics is to partition the total amount of variation among the teachers in the study into that portion which is due to differences in the average probability of teachers considering leaving across the different schools, and the portion of variation in probabilities among teachers within the same school. We estimate that 87 percent of the variation among teachers in their probability of thinking about leaving is variation within a typical school, and 13 percent of the variation is differences between schools.²⁶

The between-school variation places an upper bound on how important school-level factors can be in explaining why some teachers think about leaving, and others do not. As we will see, some school-level demographic and workplace factors are associated with the probability that a teacher will consider leaving his or her school. But these school factors can only account for the 13 percent of the total variation among teachers in their probability of thinking about leaving, and cannot explain the differences among teachers that might be found within any typical school. Individual teacher characteristics are better candidates for accounting for this latter variation.

VII. SCHOOL DEMOGRAPHIC CHARACTERISTICS AND THE PROBABILITY OF THINKING ABOUT LEAVING

With this backdrop, we next consider the association between the demographic make-up of middle schools and teachers' thoughts about leaving their classrooms.²⁷ Table 5 summarizes the demographic factors we tested for a statistically significant and practically important relationship with the probability a teacher would consider leaving. After adjusting for teacher and other school demographic characteristics, we found that only the school's total enrollment, the racial/ethnic composition of the student body, and the school's suspension rate predicted teachers' thoughts about leaving.

The sample.

Although we surveyed teachers in schools across the city, middle schools are not spread evenly across the five boroughs; there are more participating schools in Queens than the other boroughs, and relatively few middle schools in Manhattan and Staten Island. Schools vary considerably in their size; in the bottom quartile, the mean number of enrolled students is 237, which is approximately 80 students per grade; conversely, in the top quartile, schools average 440 students per grade.

New York City middle schools serve a population of students facing serious economic challenges: even at schools in the lowest quartile, an average of 56 percent of students are eligible for free lunch. At schools in the top quartile an average of 95 percent of students attending are eligible for free lunch.

The distribution of middle schools in the sample also reflects the residential segregation by race and ethnicity that characterizes the city. In the lowest quartile, 6 percent of students are Black, whereas in the top quartile, 78 percent are. A similar pattern is observed for Hispanic students. In the lowest quartile of middle schools, 11 percent of students receive special education services, whereas in the top quartile, more than one-quarter of the students are identified as special education students. Many middle schools have very few English language learners, but in the top quartile, 28 percent of the students, on average, are English language learners, a substantial fraction. Schools also differ considerably from one another in their average academic achievement, attendance rates, and stability in the student population from one year to the next.

Many school demographic characteristics cluster together; a school that has a high concentration of students living in poverty, for example, may also have relatively low average achievement. The correlations among these school-level demographic characteristics are reported in Appendix A. As these correlations demonstrate, there are powerful associations between the social characteristics of students attending New York City middle schools and the

average performance of students in a school. Schools with high concentrations of poor children of color have more students who are over-age for grade, lower attendance rates, and lower performance on the state's standardized tests of English Language Arts and mathematics. The fact that so many school demographic factors are strongly correlated with one another—there are 16 correlations in Appendix A which are greater than .50, which indicates a strong association between two factors—makes isolating their separate influences on the probability that a teacher might consider leaving a difficult task.

We briefly discuss school demographic factors which, taken alone, are associated with the probability that a teacher considered leaving, but which do not meet the threshold for statistical significance and practical importance once individual teacher characteristics and other school demographic factors are taken into account.

Borough.

There are sharp differences across boroughs in the probability that middle school teachers thought about leaving their classrooms. One-half of the teachers in Manhattan and Bronx schools considering leaving, versus just 22 percent of the teachers in Staten Island schools. When adjusted for other teacher and school characteristics, Staten Island continues to stand out as having lower rates of teachers considering leaving, but the boroughs as a group are not significant predictors of whether teachers consider leaving. The strong attachment of Staten Island's teachers to its schools may be more related to its relative geographic isolation and generational residential stability than to any characteristic shared by its schools.

School academic profile.

We also considered the concentration of special education students, percentage of English language learners, and students' average median proficiency on the New York State standardized exams. Each of these school factors is associated with the probability that a teacher considered leaving his or her current classroom. The highest rates of thinking about leaving are observed in the quartile of schools with the highest percentage of special education students (48 percent), the quartile of schools with the lowest average median proficiency on state assessments (52 percent), and the quartile of schools with the lowest average student attendance rate (50 percent). When we adjust for other teacher and school demographic characteristics, however, there is no longer a consistent relationship between any of these factors and teachers' thoughts about leaving the classroom.²⁸ The same is true for student attendance rates and student stability from one year to the next.

Table 5.

Demographic Characteristics of the Participating Middle Schools

	Mean		Mean
<i>Borough</i>		<i>Percent Special Education</i>	
Bronx	21%	Lowest quartile	11%
Brooklyn	34%	Second quartile	16%
Manhattan	12%	Third quartile	21%
Queens	22%	Highest quartile	27%
Staten Island	12%		
<i>Average Total Enrollment</i>		<i>Percent English Language Learners</i>	
Lowest quartile	237	Lowest quartile	2%
Second quartile	385	Second quartile	6%
Third quartile	707	Third quartile	13%
Highest quartile	1321	Highest quartile	28%
<i>Percent Free Lunch</i>		<i>Average Median Proficiency</i>	
Lowest quartile	56%	Lowest quartile	2.40
Second quartile	81%	Second quartile	2.58
Third quartile	89%	Third quartile	2.79
Highest quartile	95%	Highest quartile	3.30
<i>Percent Black</i>		<i>Attendance Rate</i>	
Lowest quartile	6%	Lowest quartile	88%
Second quartile	21%	Second quartile	91%
Third quartile	38%	Third quartile	93%
Highest quartile	78%	Highest quartile	95%
<i>Percent Hispanic</i>		<i>Student Stability</i>	
Lowest quartile	12%	Lowest quartile	87%
Second quartile	30%	Second quartile	92%
Third quartile	59%	Third quartile	95%
Highest quartile	79%	Highest quartile	98%
<i>Suspension Rate</i>			
Lowest quartile	4%		
Second quartile	10%		
Third quartile	17%		
Highest quartile	21%		

Poverty.

Teachers in lower-poverty schools are less likely to consider leaving their classrooms than teachers in schools with higher concentrations of poverty; one-third of the teachers in schools in the lowest quartile thought about leaving, versus 40 percent or more of the teachers in the upper three quartiles. But the differences among schools with different poverty levels do not meet the threshold of practical importance when other teacher and school demographic characteristics are taken into account.

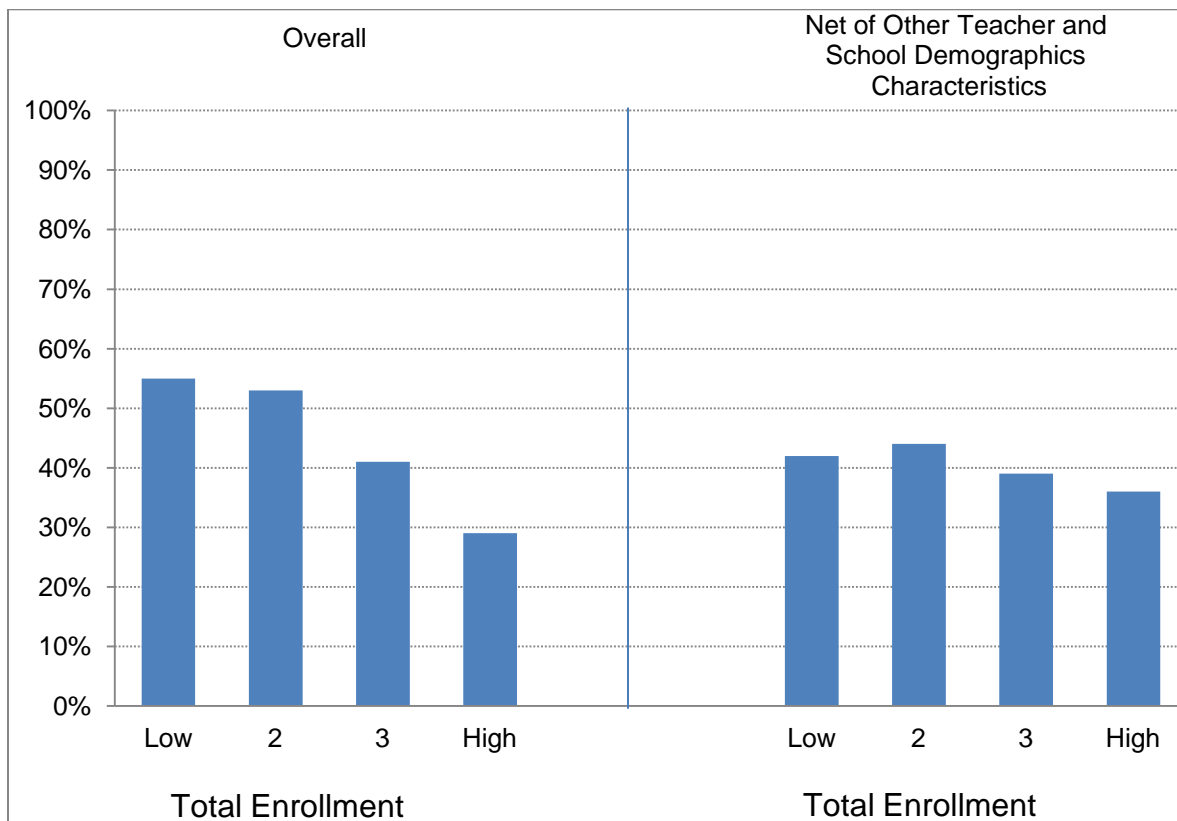
In contrast to these school structural or demographic factors which “wash out,” we now consider those that have a persistent association with teachers’ thoughts about leaving. Figures 3b-3f display the percentage of teachers considering leaving their classrooms for school demographic characteristics that have a statistically significant and practically important association with thinking about leaving: schools’ total enrollment, percentage of students who are Black or Hispanic, and suspension rates.²⁹

School size.

Teachers in larger schools are less likely to consider leaving their classrooms than teachers in smaller schools. Figure 3b shows that more than one-half of the teachers in the lower quartiles of school size have considered leaving, whereas only 29 percent of the teachers in the largest quartile of schools did so. Size, however, is associated with other school characteristics—e.g., borough location, the percentage of Black students, and average student achievement—but when other factors are examined, the link between school size and considering leaving the classroom persists. This finding may seem counterintuitive. Teachers and laypeople alike may assume that smaller schools offer a more collegial work environment. In practice, however, there is evidence that the benefits of small schools’ collegiality, where it exists, may be outweighed by scarcity of resources; since their enrollments do not provide economies of scale available to larger schools, small schools may be limited to fewer programs and services, which may affect how teachers experience the school.³⁰

Figure 3b.

Percentage of Teachers Considering Leaving by Total Enrollment



Race and ethnicity.

Figures 3c and 3d show the association between schools' racial and ethnic composition and the probability teachers considered leaving their classrooms. Figure 3c shows a clear and consistent gradient for schools with different concentrations of Black students: in schools in the lowest quartile for Black students, 31 percent of the teachers had considered leaving, compared to 50 percent of the teachers in the highest quartile. When these figures are adjusted for other school characteristics, the difference between the first two quartiles shrinks from 8 to 6 percentage points. The average probability of considering leaving in schools in the second and third quartiles becomes largely indistinguishable. The highest quartile of schools, in which an average of 78 percent of students are Black, shows an elevated rate of considering leaving: 61 percent.

The pattern for schools with varying concentrations of Hispanic students, shown in Figure 3d, is similar. The left panel shows that teachers are more likely to think about leaving their classrooms if they teach in schools with higher proportions of Hispanic students than if they teach in schools with lower proportions. When other teacher and school demographic

characteristics are taken into account, the proportion of Hispanic students remains related to teachers' likelihood of thinking about leaving. One-half of teachers working in the top quartile schools, which are an average of 79 percent Hispanic, are estimated to think about leaving. This is 18 percentage points greater than the probability that teachers in the lowest quartile schools, which are an average of 12 percent Hispanic, thought about leaving.

Figure 3c.

Percentage of Teachers Considering Leaving by Percentage Black Students at School

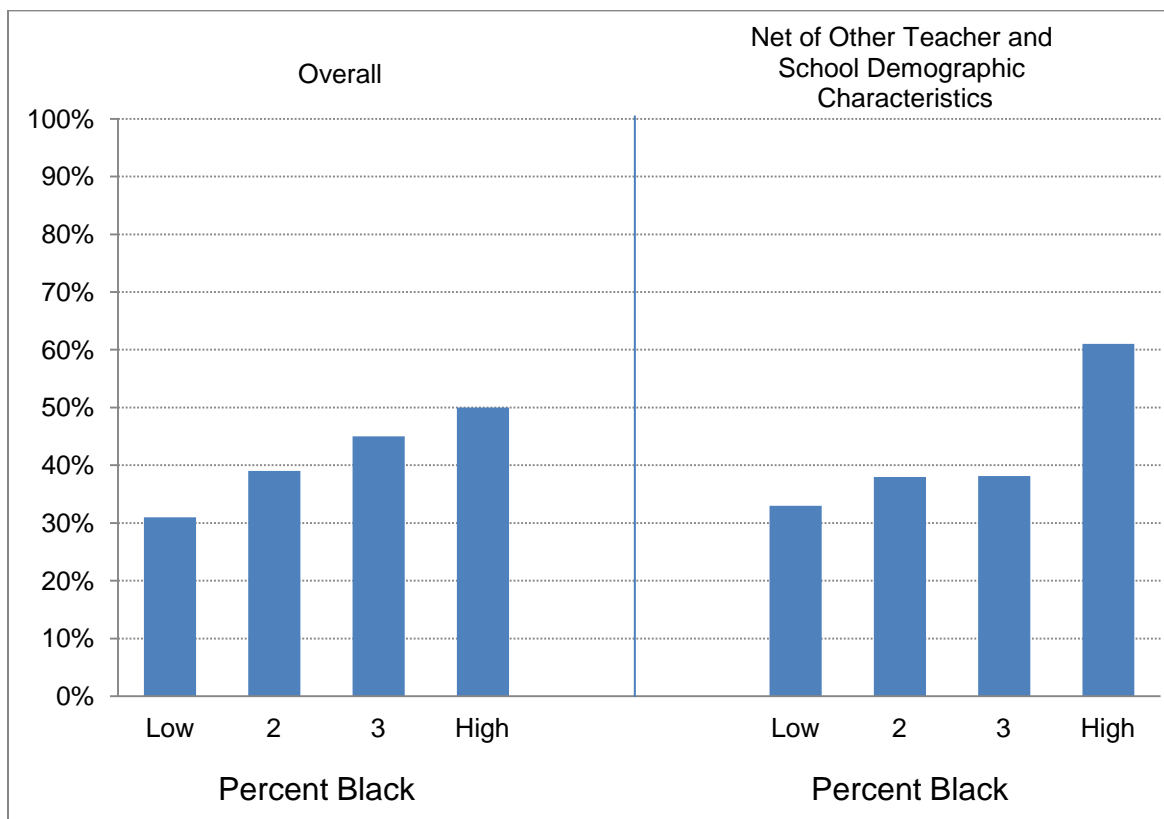
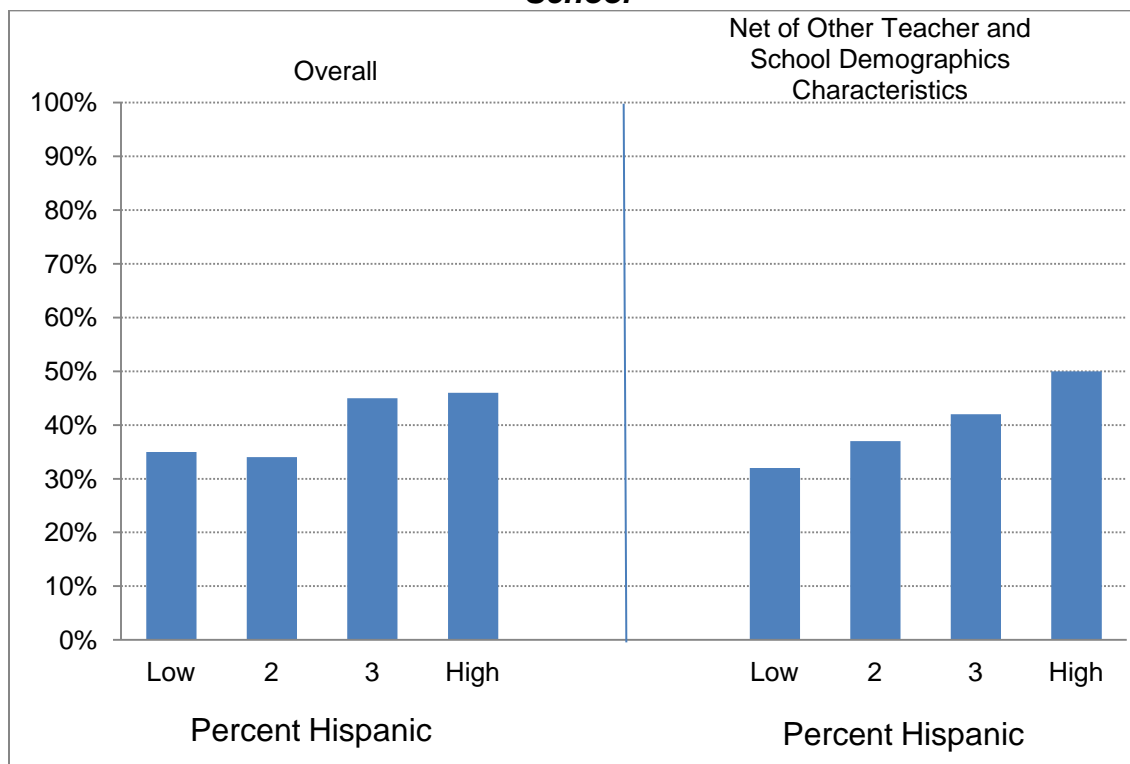


Figure 3d.
Percentage of Teachers Considering Leaving by Percent Hispanic Students at School

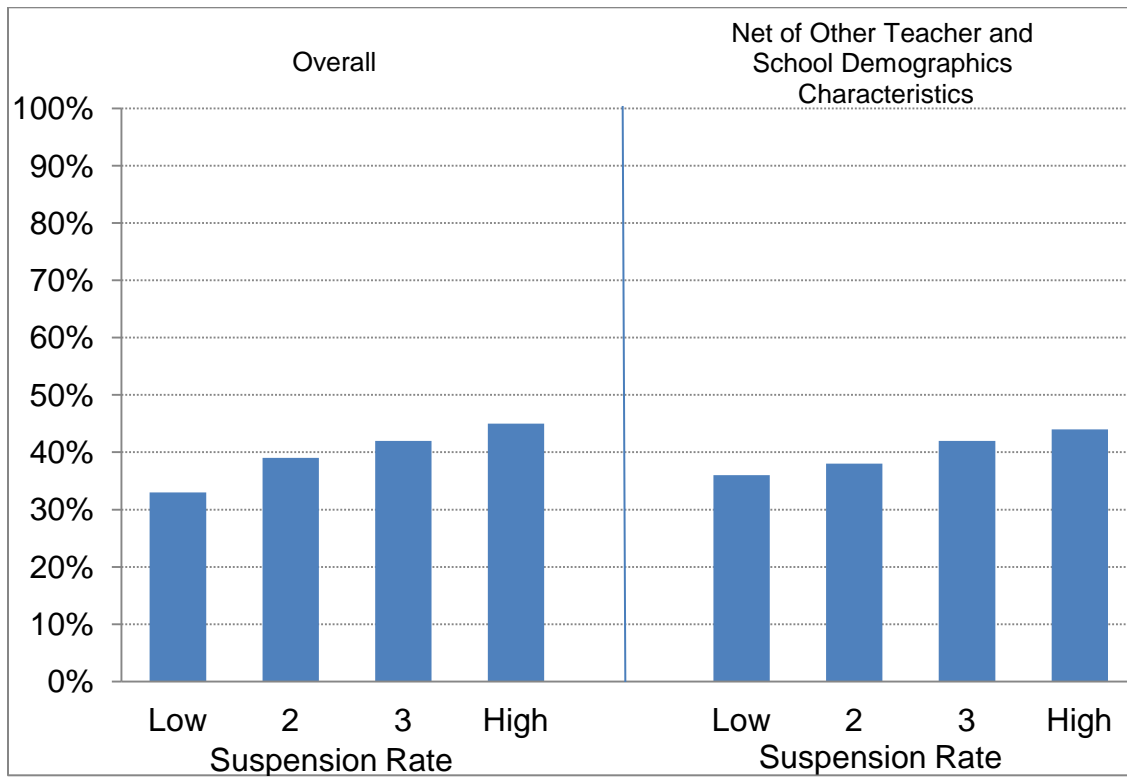


Suspension rate.

The association between a school's suspension rate and the probability that teachers considered leaving their school or leaving teaching altogether is displayed in Figure 3e. This association is statistically and practically significant when other teacher and school demographic factors are taken into account. Schools in the highest quartile have a mean suspension rate of 21 percent, compared to a mean suspension rate of 4 percent in the lowest quartile. This difference is associated with an eight percentage point increase in the likelihood a teacher will consider leaving. This is not surprising, as other studies of teacher retention also suggest that suspension rates are related to teachers' thoughts of leaving their jobs.³¹ We speculate that this association may be related to cultural differences between students and teachers—the same differences that play a role in the disproportionate special education labeling of Black boys.³²

Figure 3e.

Percentage of Teachers Considering Leaving by School Suspension Rate



Summary.

Taken together, these demographic features of schools improve our ability to predict which teachers have thought about leaving over individual teacher characteristics alone. The logistic regression model including these various school demographic measures is able to correctly predict whether or not a teacher considered leaving for about 69 percent of teachers, a boost of four percentage points over the predictive power of individual teacher characteristics alone. Teachers are, then, responsive to the demographic features of the schools in which they teach. For the most part, however, these attributes are not viewed as candidates for policy intervention, as they represent relatively enduring features of the structure of the school. In contrast, the features of schools as organizations and places of work may be more amenable to transformation.

VIII. THE SCHOOL AS A WORKPLACE AND THE PROBABILITY OF THINKING ABOUT LEAVING

Unlike the objective measures of school demographics in the previous section, the measures in this section reflect the subjective experience of teaching in a given school. We developed measures of the school as a workplace that reflect the aggregate views of all responding teachers in the school. These measures are thus school-level measures, rather than the perceptions of an individual teacher. Different teachers within a school may have differing perceptions and experiences, but those are best interpreted as attributes of the teacher, rather than as attributes of the school, which is the focus of the current section. The survey items which make up these measures, and their psychometric properties, are shown in Appendix B.

Table 6 displays basic descriptive information about the differences among schools on the school workplace measures, including the average score for each of the four quartiles when schools are ranked from highest to lowest on a given workplace measure.

With the exception of frequency of professional development, the probability that a teacher considered leaving varies substantially with school workplace characteristics. Teachers are less likely to consider leaving if they work in schools with high levels of teacher collegiality, principal leadership, parental support, and collective responsibility. They are also less likely to consider leaving schools that provide satisfying professional development, more effective induction for new teachers, adequate resources, and more orderly environments.³³ All of these associations persist when individual teacher characteristics and school demographic factors are taken into account.

We found a similar, persisting relationship between our measures of the social psychological climate of the school workplace and teachers' thoughts about leaving. Both before and after controlling for other teacher and school characteristics, there are statistically significant and practically important associations between thoughts of leaving and school-level measures of peer encouragement, teacher efficacy, and social connection to students. For each characteristic, teachers are less likely to consider leaving schools with higher levels of these attributes.

As was true for the clustering of school demographic factors, these features of the school as a workplace frequently are correlated with one another. As Appendix C documents, there are 23 correlations among the 13 workplace factors which exceed .50, indicating a strong association between two factors. These powerful correlations pose a challenge for isolating the effects of a particular workplace factor, since as it rises or falls, other workplace factors do as well. We address this by considering the workplace measures one at a time, while taking individual teacher characteristics and school demographic factors into account simultaneously.

Table 6.
Workplace Characteristics of Participating Schools

Average		Average	
<i>Teacher Collegiality</i>		<i>Satisfaction with PD</i>	
Lowest quartile	2.43	Lowest quartile	2.09
Second quartile	2.71	Second quartile	2.40
Third quartile	2.93	Third quartile	2.63
Highest quartile	3.19	Highest quartile	2.91
<i>Principal Leadership</i>		<i>Adequacy of Resources</i>	
Lowest quartile	2.18	Lowest quartile	2.25
Second quartile	2.67	Second quartile	2.53
Third quartile	2.97	Third quartile	2.73
Highest quartile	3.41	Highest quartile	3.07
<i>Parental Support</i>		<i>Quality of Teacher Induction</i>	
Lowest quartile	2.52	Lowest quartile	1.85
Second quartile	2.72	Second quartile	2.22
Third quartile	2.92	Third quartile	2.43
Highest quartile	3.16	Highest quartile	2.80
<i>Collective Responsibility</i>		<i>Peer Encouragement to Stay</i>	
Lowest quartile	3.24	Lowest quartile	2.46
Second quartile	3.48	Second quartile	2.81
Third quartile	3.69	Third quartile	3.05
Highest quartile	4.01	Highest quartile	3.40
<i>School Disorder</i>		<i>Teacher Efficacy</i>	
Lowest quartile	1.79	Lowest quartile	3.12
Second quartile	2.37	Second quartile	3.34
Third quartile	2.70	Third quartile	3.48
Highest quartile	3.04	Highest quartile	3.65
<i>Professional Control</i>		<i>Personal Ties to Students</i>	
Lowest quartile	2.00	Lowest quartile	3.18
Second quartile	2.17	Second quartile	3.34
Third quartile	2.34	Third quartile	3.45
Highest quartile	2.69	Highest quartile	3.59
<i>Frequency of Professional Development</i>			
Lowest quartile	2.10		
Second quartile	2.27		
Third quartile	2.42		
Highest quartile	2.63		

Figures 4a-4l display associations between school-level workplace measures and the probability a teacher considered leaving his or her classroom.³⁴ The left side of each figure displays the probability of considering leaving for teachers in each of the four quartiles of schools on a given measure, arrayed from the lowest quartile to the highest quartile. The right side of each figure shows the predicted probabilities for teachers in each of the four quartiles of schools after teacher and school demographic features are taken into account. Each figure is accompanied by a description of the workplace measure and brief analysis.

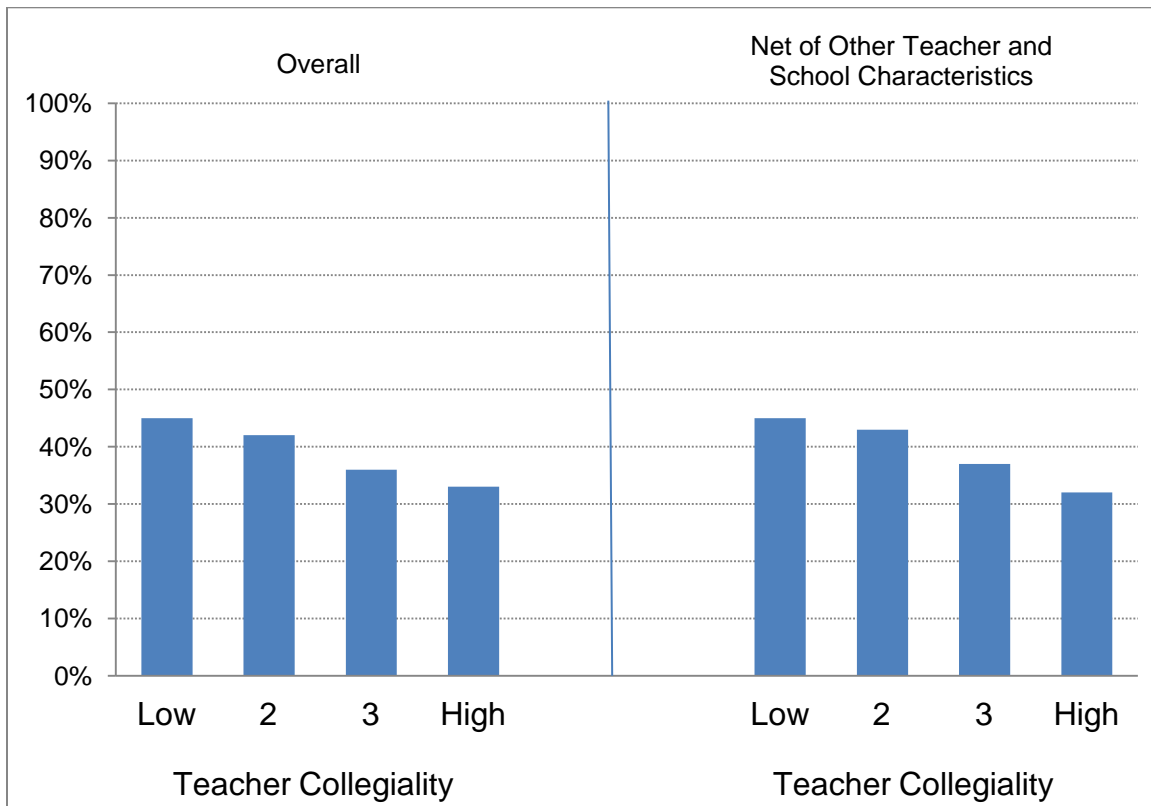
Teacher collegiality.

We define teacher collegiality as the extent to which teachers respect and support one another. This scale is made up of four items, including “Teachers in this school trust each other” and “Teachers at this school recognize and respect colleagues who are the most skillful teachers.” Possible responses to each item were “Strongly Disagree” (scored 1), “Disagree” (2), “Agree” (3), and “Strongly Agree” (4). A high score indicates that teachers reported a high level of teacher collegiality.

On average, teachers report a moderately high level of teacher collegiality, but the amount of teacher collegiality varies somewhat from one school to the next. Figure 4a shows that as school collegiality increases, fewer teachers think of leaving. The left side of the figure shows teachers’ actual reports about their thoughts of leaving. Overall, an average of 45 percent teachers at schools with levels of collegiality in the lowest quartile thought about leaving. In contrast, only 33 percent of teachers working at highly collegial schools thought about leaving. These differences are just as large even after controlling for the influence of other teacher and school characteristics.

Figure 4a.

Percentage of Teachers Considering Leaving by Teacher Collegiality



Principal leadership.

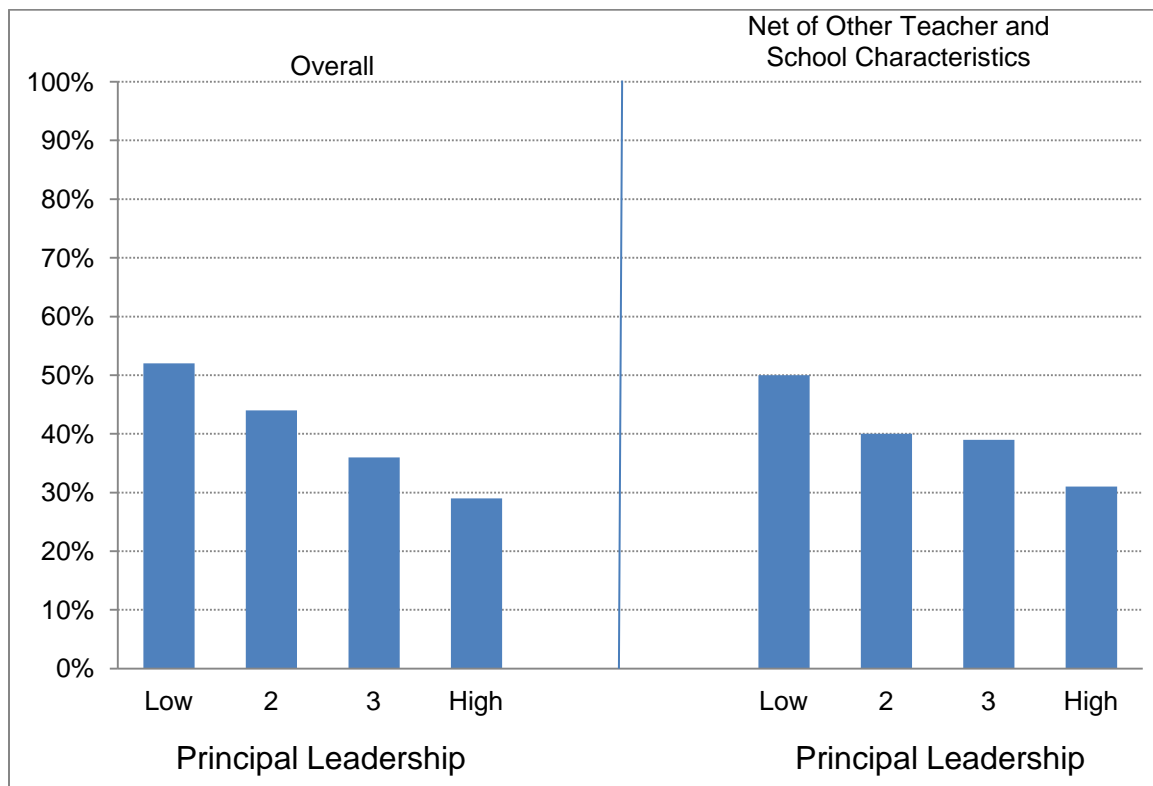
Our principal leadership measure assesses the extent to which the principal is successful in managing resources and supporting teachers' work. There are seven items in the principal leadership scale, including "The principal at this school is knowledgeable about instruction and is an effective instructional leader" and "The principal solicits, and genuinely values, teachers' input when considering making substantial changes at the school." Possible responses to each item were "Strongly Disagree" (scored 1), "Disagree" (2), "Agree" (3), and "Strongly Agree" (4). A high score indicates that teachers reported a high level of principal leadership.

Overall, teachers report a moderate level of principal leadership, but there is substantial variation across schools, with teachers in some schools highly dissatisfied with the leadership of their principal and those in other schools reporting very positive principal leadership. We found a consistent relationship between leadership ratings and teachers' thoughts about leaving. As teachers' perception of principal leadership improves, they are less likely to think about leaving. In schools with principals in the highest leadership quartile, only 29 percent of teachers considered leaving, versus 52 percent of teachers in schools whose principals ranked in the

lowest quartile. This relationship is nearly as strong even after controlling for other teacher and school characteristics. All else being equal, only 31 percent teachers in highest quartile schools consider leaving compared to 50 percent of teachers in lowest quartile schools do. Recently, there has been considerable attention to the importance of principal leadership in retaining teachers found in academic research.³⁵ Our findings are consistent with this literature in suggesting that school leadership has a strong impact on teachers' workplace experience. Principal training and professional development may be potentially powerful policy levers in efforts to improve teacher retention.

Figure 4b.

Percentage of Teachers Considering Leaving by Principal Leadership



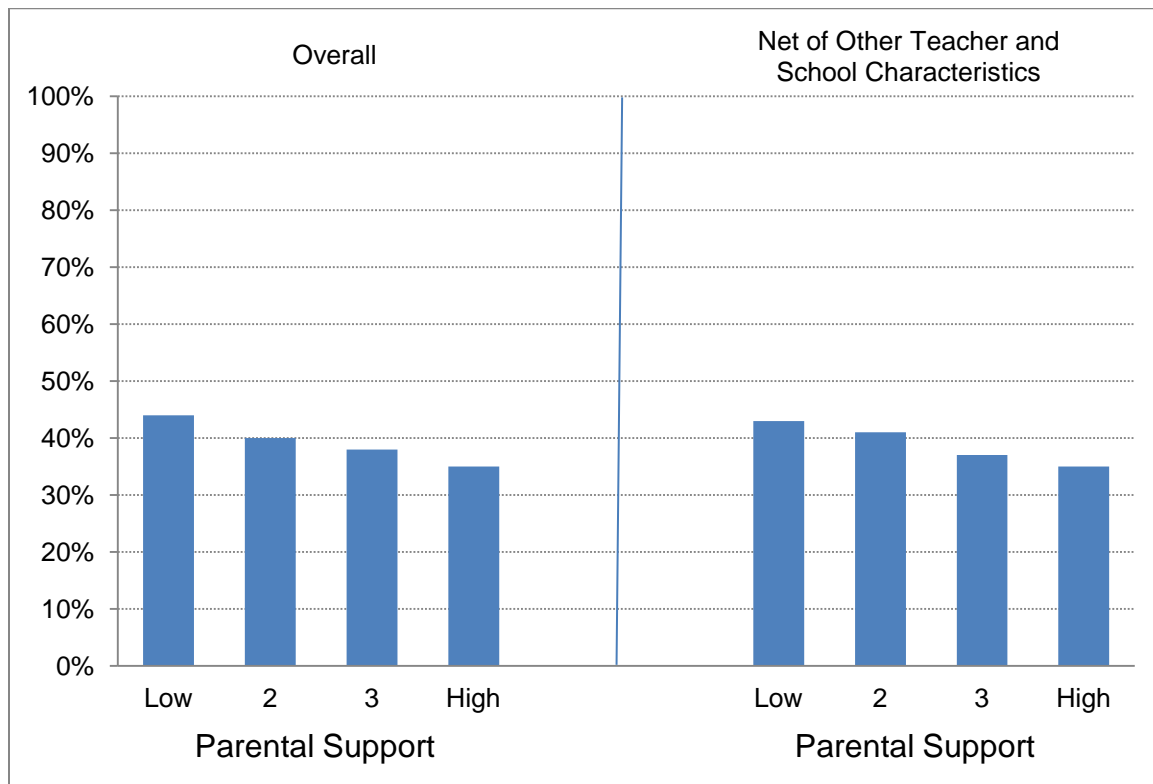
Parental support.

We measured the extent to which teachers believe that parents respect and support teachers in their school. This three-item scale includes items such as “I feel respected by the parents in this school” and “My students’ parents support my efforts as a teacher.” Possible responses are “Strongly Disagree” (scored 1), “Somewhat Disagree” (2), “Somewhat Agree” (3), and “Strongly Agree” (4).

Overall levels of parental support are moderate, and there is less variation across schools than for measures of principal leadership. As Figure 4c shows, in schools teachers rated in the lowest quartile of parental support, 44 percent of teachers considered leaving. At schools in the highest quartile, 35 percent considered leaving. After adjusting for teacher and school demographic characteristics, the predicted probabilities are almost the same.

Figure 4c.

Percentage of Teachers Considering Leaving by Parental Support



Collective responsibility.

We asked teachers about their colleagues' displays of collective responsibility for student learning and development. The collective responsibility measure is a scale made up of seven items asking, for example, how many "teachers take responsibility for ensuring that all students learn" or "help maintain discipline in the entire school, not just their classrooms." Possible responses included "None or very few" (scored 1), "Some" (2), "About half" (3), "Many" (4), and "All or nearly all" (5). A high score indicates a high level of collective responsibility among the teachers in a school. Overall, teachers report that more than one-half of the teachers in their schools take responsibility for what happens in the school, and there is not a

great deal of variability across schools in the extent of collective responsibility.

Unlike some of our other workplace measures, there is a considerable difference between the raw and adjusted estimates of collective responsibility's impact on the likelihood teachers consider leaving. 51 percent of teachers in schools rated lowest for collective responsibility report having thoughts of leaving during the 2010-2011 school year compared to 29 percent in schools with rated highest in collective responsibility. After controlling for other teacher and school characteristics, collective responsibility remains significant, but the estimated impact is much smaller. The findings suggest that there may be a minimum threshold of collective responsibility above which it becomes less important for teachers' thoughts about staying or leaving.

School disorder.

Together, the extent of perceived disrespect and criminal activity in the school constitute our measure of school disorder. The school disorder scale is based on teachers' reports of the extent to which 10 factors, such as student disrespect of teachers and gang activity, are a problem at the school. Teachers' responses ranged from "Not a problem" (scored 1), "Slight problem" (2), "Moderate problem" (3), and "Major problem" (4). Thus, a high value on this scale signifies a high level of school disorder. Most teachers report disorder as a moderate to major problem in their schools, and there are very large differences from one school to the next in the extent to which disorder is viewed as a problem.³⁶

Figure 4d.

Percentage of Teachers Considering Leaving by Collective Responsibility

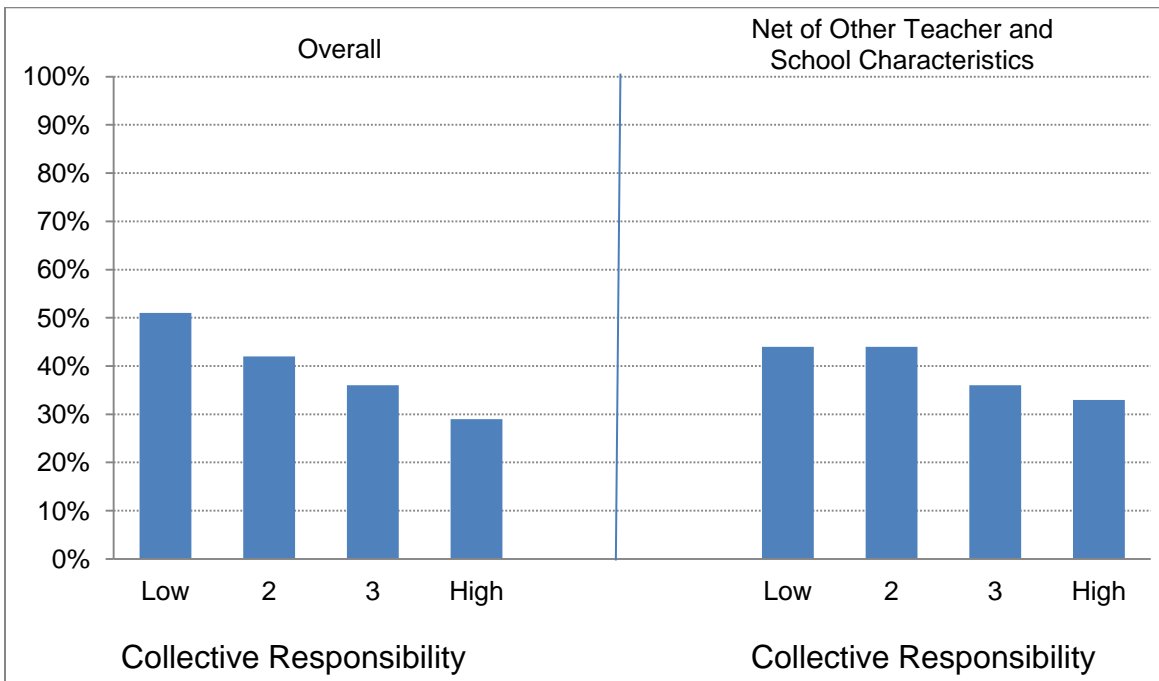
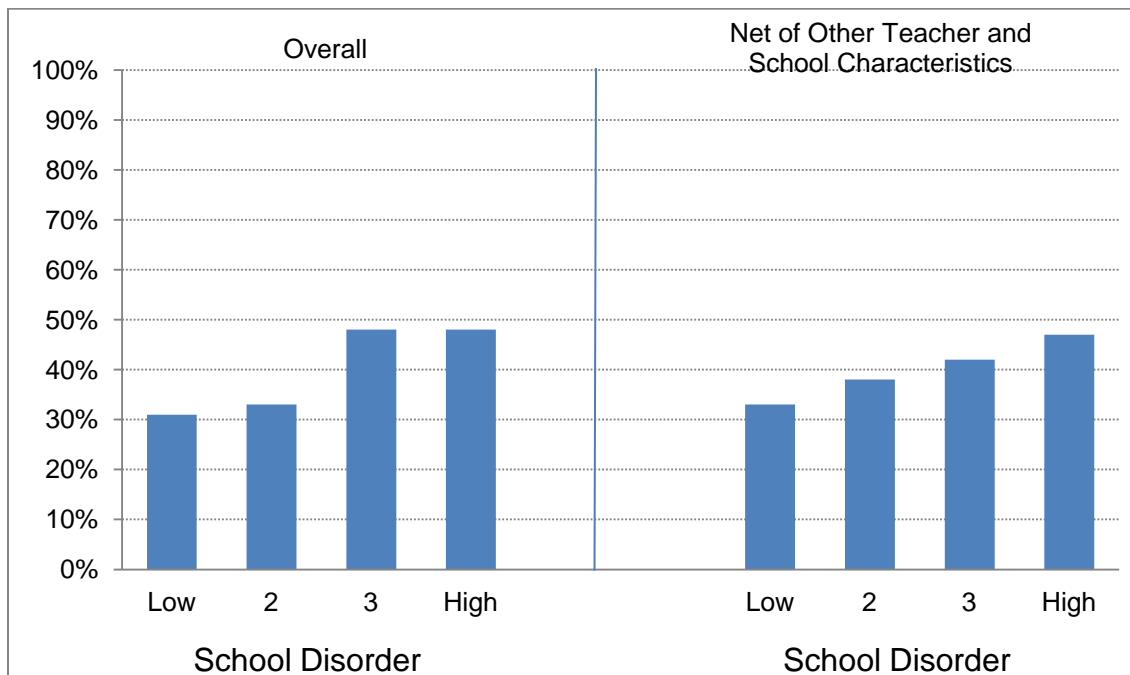


Figure 4e.

Percentage of Teachers Considering Leaving by School Disorder



As teachers' perceptions of school disorder increase, so does the likelihood they will consider leaving their school. Figure 4e shows that even after accounting for teachers' individual characteristics and school demographics, the effect of school disorder on thoughts of leaving remains both statistically significant and practically important. Teachers working in the most disorderly schools are estimated to be 14 percentage points more likely to consider leaving than teachers in the schools with the least disorder.

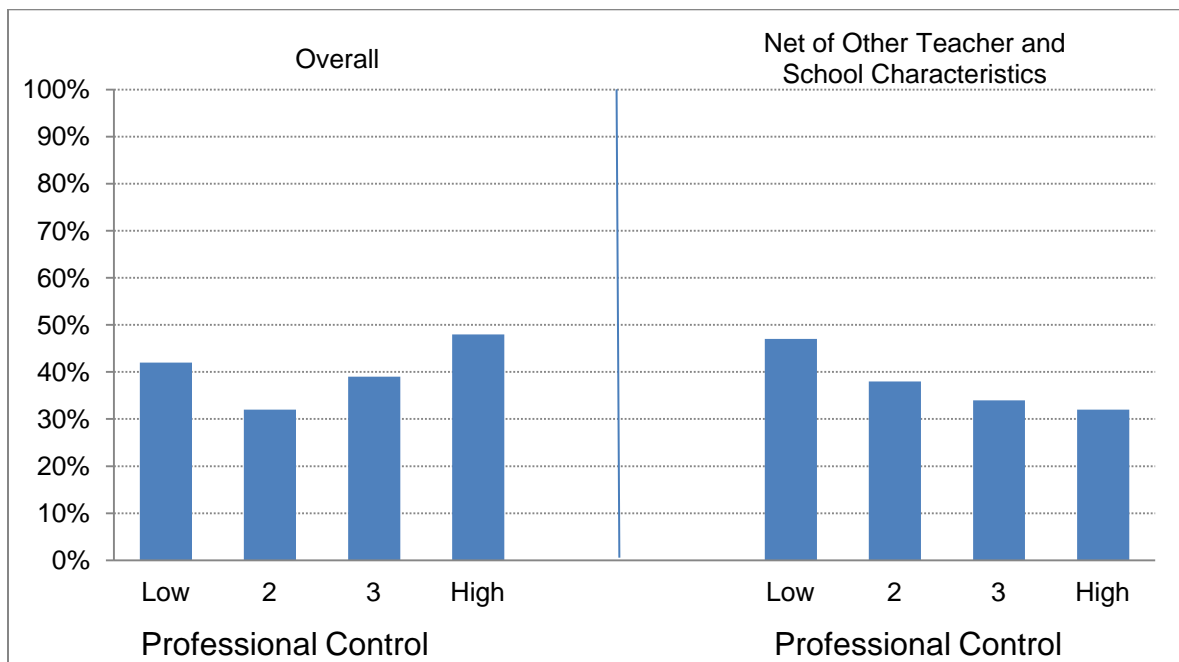
Professional control.

We investigated the extent to which teachers feel they have control over various aspects of their work: the choice of curricula, standards for student performance, and other professional responsibilities. Among the 10 different responsibilities considered are selecting content, skills and topics to be taught, determining standards for student behavior, and deciding teacher classroom and grade-level assignments. For each responsibility, teachers could report that they had no control (scored 1), minor control (2), moderate control (3), or a great deal of control (4). A high score on the control over professional responsibilities scale means that teachers report a great deal of control over their professional work.

Teachers on average report minor to moderate control over their work, but teachers in some schools report considerably more control than teachers in other schools. This association is reported in Figure 4f. Before controlling for other teacher and school characteristics, schools in the two middle quartiles appear to have slightly lower rates of teachers considering leaving than do schools with the highest and lowest levels of professional control. After adjusting for teacher and school characteristics, we see a clear pattern, in which greater levels of professional control are associated with a lower probability of thinking about leaving one's school.

Figure 4f.

Percentage of Teachers Considering Leaving by Professional Control



Professional development (PD).

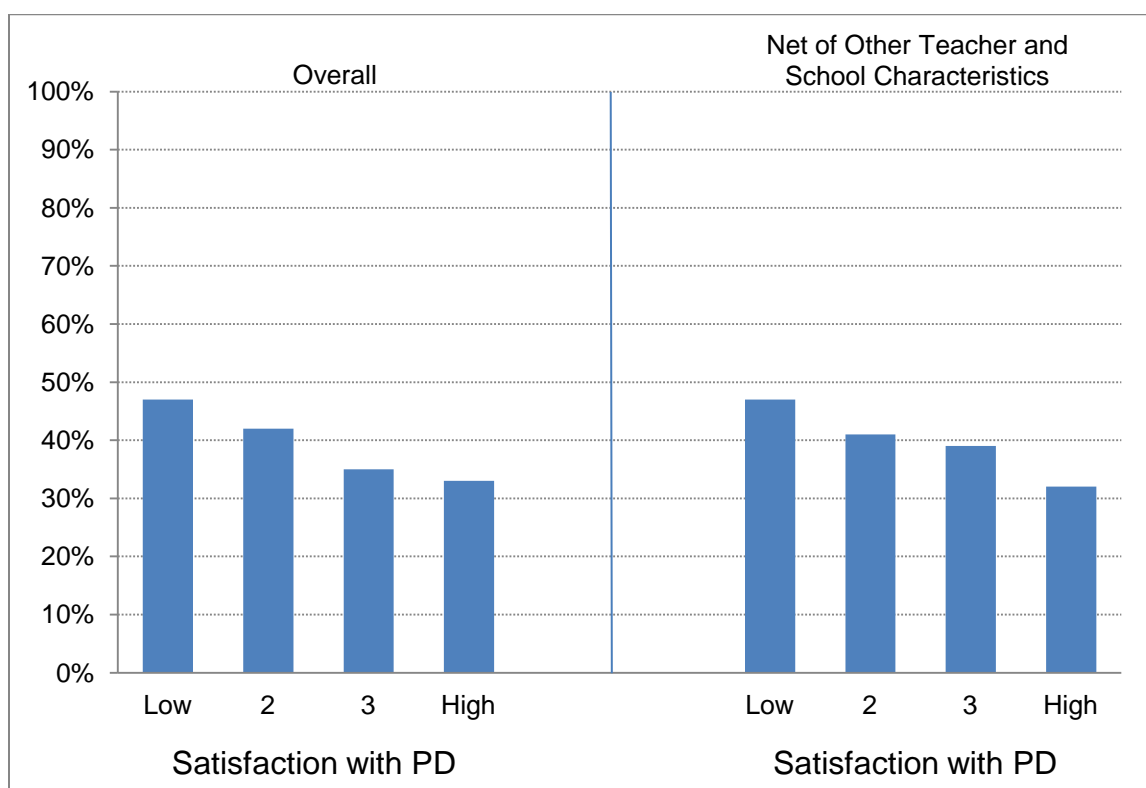
We considered relationships between the probability teachers considered leaving and their experiences with professional development. When we asked how often they engaged in a professional development activity such as meeting with colleagues to discuss the practice of teaching, we find PD opportunities arise less than once a month at the average school, and the frequency does not differ substantially across schools. With other teacher and school characteristics controlled, frequency of professional development does not have a statistically significant or practically important impact on teachers' thoughts of leaving. Rather, what matters for teachers is the perceived quality of these experiences.

Teachers' school-level reports of their satisfaction with their professional development activities are strongly associated with the likelihood that they consider leaving their classrooms. Our measure of teachers' satisfaction with professional development asked teachers the extent to which the professional development activities in which they participated supported their development as teachers. Teachers' satisfaction with their professional development is based on their responses to four survey items, including "Most of what I learn in the professional development activities offered at my school helps me to address the needs of my current students" and "My professional development activities include enough time to think carefully about, try, and evaluate new ideas." A high score on the satisfaction with professional development scale indicates that the teachers in a school found their professional development

opportunities valuable. Even after we account for other teacher and school characteristics, we find that teachers in the top quartile of schools on satisfaction with professional development are less likely than the average teacher, and 15 percentage points less likely than teachers in the bottom quartile of schools, to think about leaving.

Figure 4g.

Percentage of Teachers Considering Leaving by Satisfaction with Professional Development (PD)



Quality of teacher induction.

We asked teachers if their schools have an effective induction plan or program to support new teachers. Possible responses were “Strongly Disagree” (scored 1), “Somewhat Disagree” (2), “Somewhat Agree” (3), and “Strongly Agree” (4). Most teachers in the study do not believe that their schools have an effective induction program for new teachers, but some schools fare moderately better on this measure than do others.

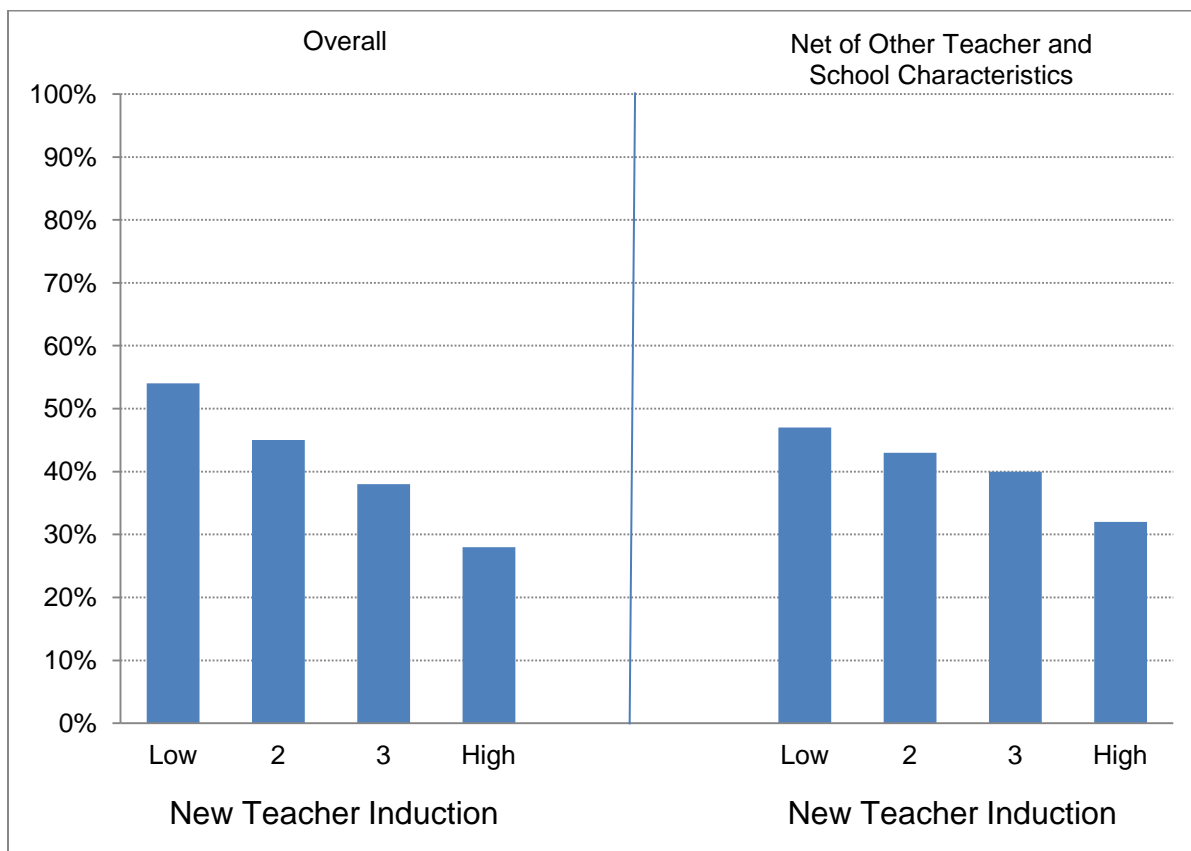
The association between teachers' reports of the quality of their induction program for new teachers and the probability of considering leaving is reported in Figure 4h. In the 2009-2010 school year, only 28 percent of teachers in schools with the highest rated induction

programs considered leaving, versus 54 percent of teachers at schools with programs ranked in the lowest quartile. After accounting for teachers' individual characteristics and school demographics, 32 percent of teachers in top quartile schools considered leaving, compared to 47 percent of teachers with the weakest programs. The association between induction and thoughts of leaving thus is robust and sizeable.

This finding is consistent with other studies that strongly suggest the careful mentoring and induction of new teachers can enhance their professional development and sustain their commitment to and retention in challenging school placements.³⁷ It is important to note that these results come from surveying teachers who have varying experience levels, from novice to near retirement. Also, the adjusted estimates of new teacher induction's impact control for teachers' individual characteristics, including years of experience. This suggests that schools taking care to have effective induction programs for beginning teachers may engage in other practices that make a school's climate supportive of all teachers, regardless of their career stage.

Figure 4h.

Percentage of Teachers Considering Leaving by New Teacher Induction

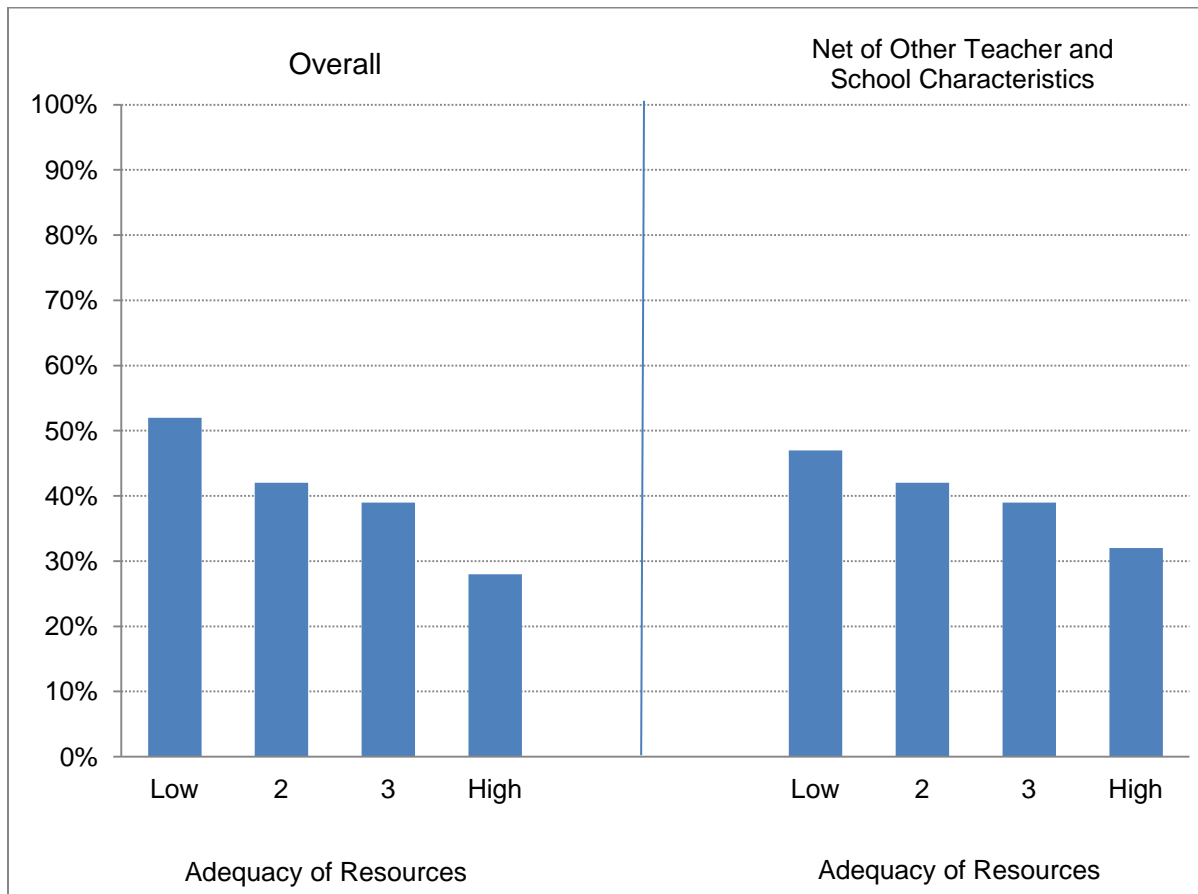


Adequacy of resources.

Our measure of adequacy of resources asked teachers about materials, physical spaces, and support services at their school. This five-item scale included “The student support services offered at this school (e.g. social workers, guidance services, speech therapists, etc.) are adequate and effective” and “The classroom supplies that I have access to are adequate in order to do my job well.” A high value indicates that the resources are adequate. In general, teachers report that the resources available to them are not adequate; the teachers in the bottom quartile of schools on this factor strongly disagree that their resources are adequate, whereas those in the top quartile disagree somewhat. There is meaningful variation across schools, but the overall picture is one in which schools lack the resources teachers believe that they need. After controlling for other teacher and school characteristics, adequacy of resources has a significant effect on teachers’ thoughts of leaving, with higher resource levels being associated with lower probabilities of considering leaving.

Figure 4i.

Percentage of Teachers Considering Leaving by Adequacy of Resources



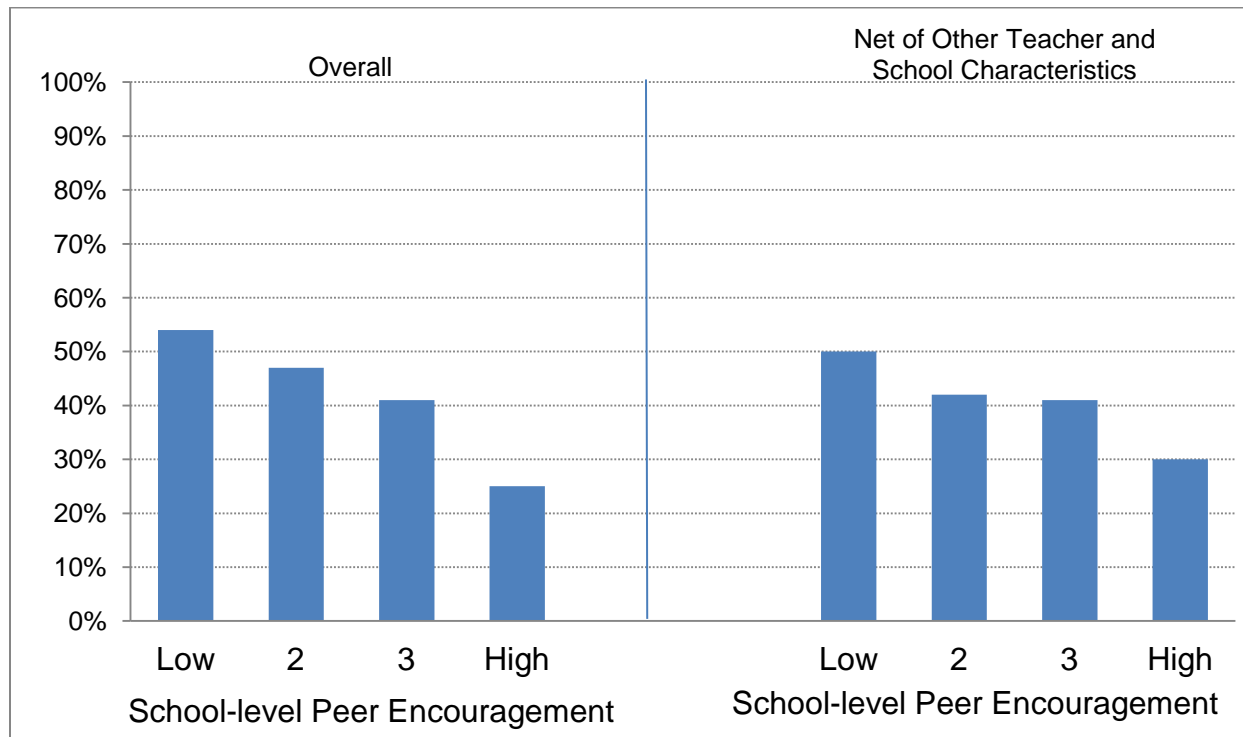
Peer encouragement.

We investigated the influence of encouragement teachers receive from people important to them to stay at their schools. Our peer encouragement measure asked for teachers' response to the statement "Most of the people who are important to me think that I should stay in this school." Across schools in the sample, most teachers report that people important to them think they should stay in their current school. Three-quarters of all teachers either agree somewhat or strongly agree with this statement, and only 12 percent strongly disagree. We constructed a school-level measures of peer encouragement by aggregating the individual responses of teachers and finding the average for each school. There is a moderate level of variation among schools in this aggregate measure; 45 percent of the teachers in the schools in the bottom quartile disagree strongly or somewhat with this statement, compared to only 10 percent of the teachers in the top quartile.

Teachers in schools where most of their peers are encouraged to stay in the school are less likely to consider leaving their current classrooms. This association is displayed in Figure 4j, which shows that teachers in schools in the top quartile of peer encouragement have a lower rate of considering leaving their current classroom than do teachers in the other three quartiles (30 percent vs. 41-50 percent). This is strong evidence of the power of peer influence, but such peers are not neutral: there are moderately large associations indicating that peers are more likely to encourage teachers to stay in schools with positive school leadership, lower rates of school disorder, and lower concentrations of students in poverty and of Black and Hispanic students.

Figure 4j.

Percentage of Teachers Considering Leaving by School-level Peer Encouragement



Teacher efficacy

Teacher efficacy is the school average response to the statement "Overall, I feel like I am an effective teacher and that I am successful in my efforts at this school." There is relatively little variation across schools in the average amount of efficacy reported by teachers. The vast majority of teachers responding to the survey feel that they are effective teachers who are successful in their efforts at the school. More than one-half strongly agreed with this statement, and all told, 91 percent either strongly agreed or agreed somewhat. Only 3 percent of the responding teachers strongly disagreed that they feel effective in the classroom. Figure 4k shows that despite the low variation throughout the sample, teachers' perceived self-efficacy is a significant factor in their thoughts of leaving or staying in their current positions. The magnitude of its impact is very similar to that of peer encouragement, which is not surprising since external encouragement and internal feelings of efficacy are correlated with one another.

Figure 4k.
Percentage of Teachers Considering Leaving by School-level Efficacy

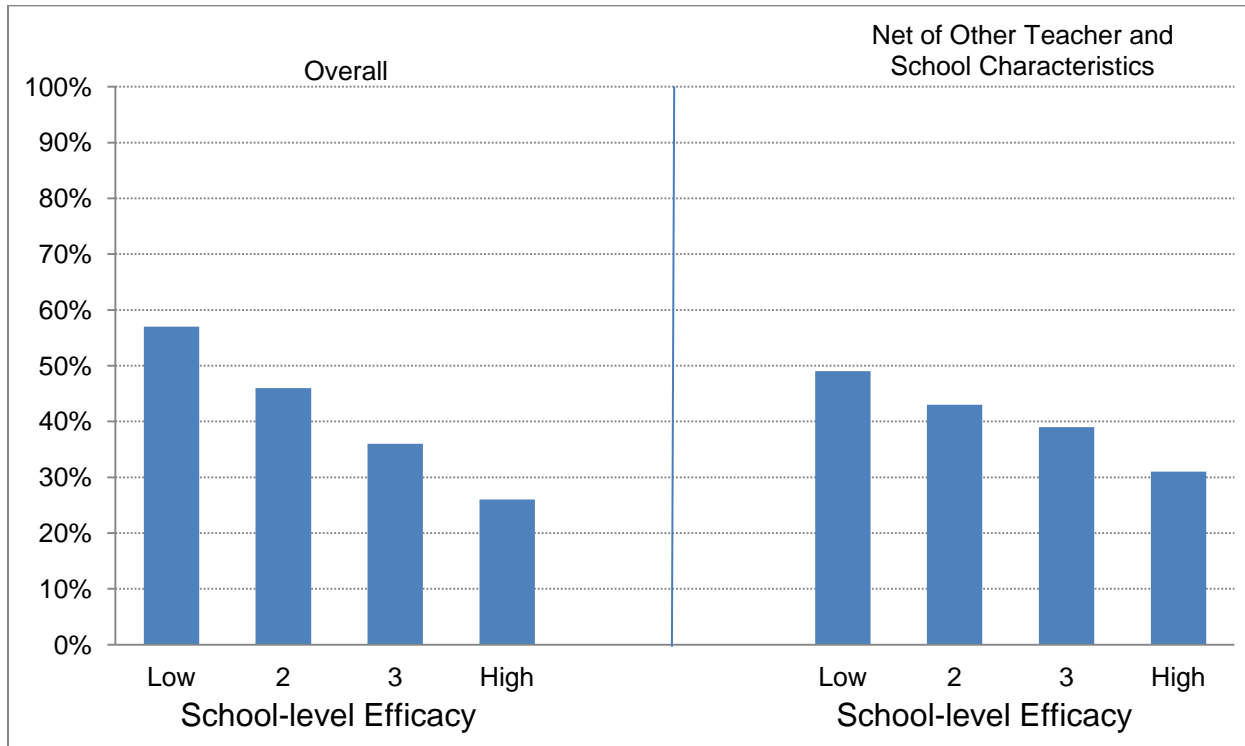
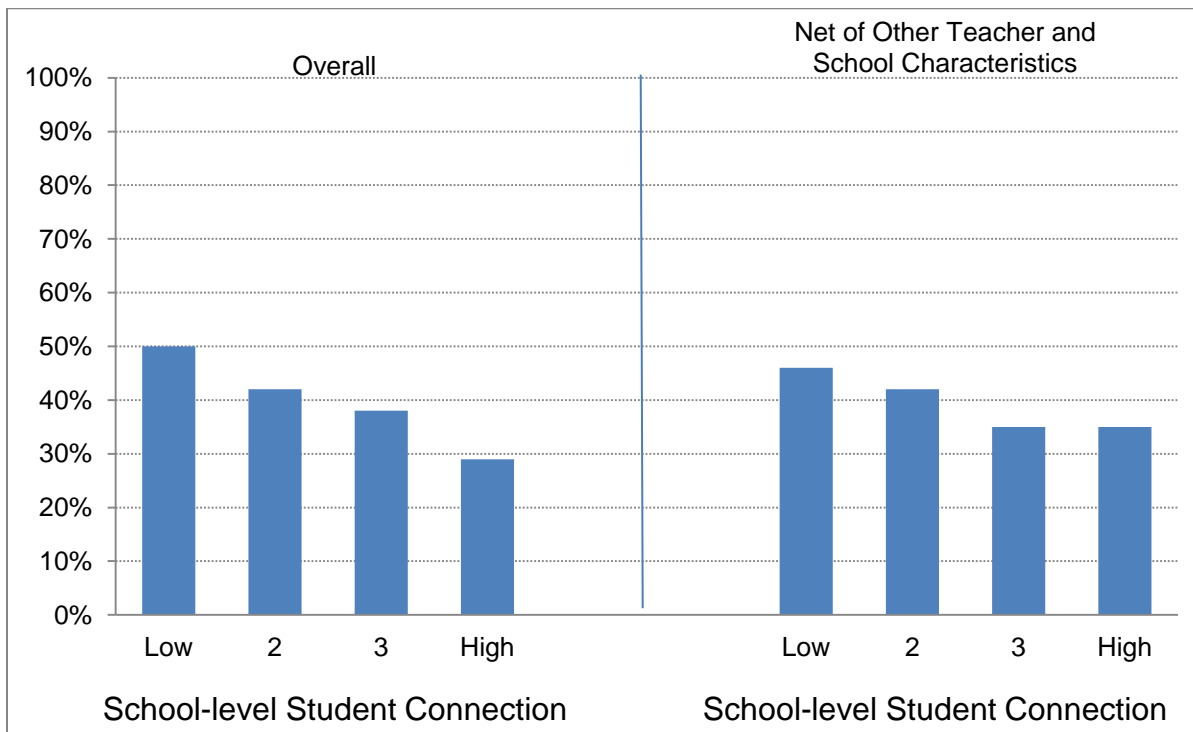


Figure 4l.
Percentage of Teachers Considering Leaving by School-level Connection



Personal ties to students

Personal ties to students is the school average for "I identify with my students and believe we have a strong personal connection." Here too the differences across schools are small, as more than 80 percent of the teachers in the schools in the bottom quartile agree strongly or somewhat with this statement. Teachers overwhelmingly believe that they identify with and have a strong personal connection with their students. More than one-half strongly agree, and 90 percent overall either strongly agree or agree somewhat with this statement. Just 2 percent of the more than 4,000 teachers responding to the survey strongly disagreed with the claim that they have a strong personal connection with their students.

School workplace measures summary.

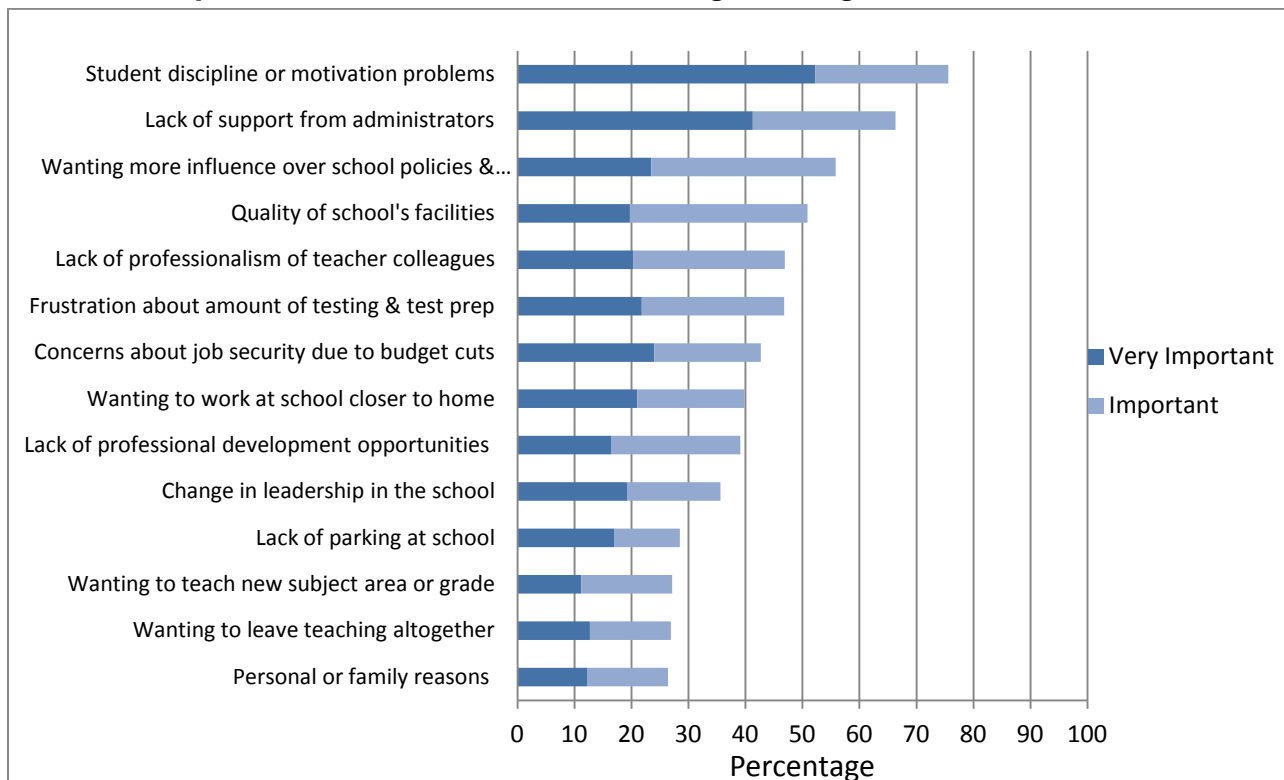
Each of the school workplace measures we have considered here is associated with the probability that a teacher will consider leaving his or her classroom, even when individual teacher characteristics and the demographic character of the school are taken into account. And collectively, the school workplace measures increase our ability to predict accurately whether a teacher considered leaving his or her classroom from 61 percent of all teachers to 68 percent of teachers. This pattern suggests the promise of school workplace factors as a site for policy intervention. But we are not able to judge with any precision where to look first; because the school workplace factors are correlated with one another, they are hard to tease apart. We return to this point in the interpretive summary of our findings, which follows our discussion of teachers' reasons for considering leaving their current classrooms.

IX. REASONS FOR CONSIDERING LEAVING

Leaving one's current school.

We asked the teachers who reported that they had considered leaving their school during the 2009-10 school year to rate the importance of 14 different factors in their consideration to leave their school. Teachers rated each factor as not at all important, somewhat important, important, or very important. Every factor was rated as very important by at least 12 percent of the responding teachers, and either very important or important by 26 percent of these teachers. But some factors were more important than others, with student discipline problems and the lack of administrative support leading the way. Figure 5 reports the percentage of teachers indicating that a given factor was very important or important, with the factors listed in descending order of importance. More than three-quarters (76 percent) of all teachers who reported that they had considered leaving their school indicated that student discipline problems and/or lack of student motivation was a very important or important consideration in their thinking. Two-thirds (66 percent) stated that a lack of support from administrators was very important or important. More than one-half of all teachers said that wanting to have more influence over school policies and practices and the quality of their school's facilities were very important or important considerations (56 percent and 51 percent, respectively.)

Figure 5.
Importance of Factors in Considering Leaving Current School



Just under one-half (i.e., 47 percent) of all responding teachers indicated that a lack of professionalism among teacher colleagues and frustration about the amount of testing and test preparation in their school were very important or important in their considering leaving their current schools. Other factors that were important to between one-third and one-half of the teachers considering leaving were, in descending order of importance, concerns about job security due to district budget cuts; wanting to work at a school closer to home; lack of opportunities for professional development as a teacher; and a change of leadership in the school. The least important factors were, in descending order, lack of availability of parking at the school; wanting to teach a new subject or grade; wanting to leave teaching altogether; and personal or family reasons.

We considered whether the rank-ordering of these factors was similar for different kinds of teachers, or whether some factors were more or less important for particular categories of teachers. Teachers of all stripes cited student discipline and administrative support as particularly important in their thinking about leaving their schools. Student discipline problems were especially important to teachers who did not view themselves as effective in the classroom; 92 percent of these teachers rated discipline as very important or important. Discipline problems also were cited highly by teachers in schools in the lowest quartile of achievement principal leadership. (Not surprisingly, 83 percent of the teachers in schools in the lowest quartile of principal leadership who were considering leaving their schools rated poor administrative support as a very important or important factor.)

Conversely, we found that pathways into teaching were associated with the importance ascribed to different factors for those considering leaving their schools. Net of other teacher characteristics, Teach For America teachers and New York City Teaching Fellows were less likely than traditionally certified teachers to rate student discipline as an important factor in considering leaving their schools. And, although these factors were not endorsed by substantial numbers of teachers, these alternate-route teachers also were less likely to name the quality of school facilities, concerns about job security, parking, or wanting to work closer to home as factors important in their thinking about leaving their schools.

Teachers' reports about the relative importance of different factors to their consideration of leaving their current schools reveal that many different factors are important to some teachers, but a few factors are important to most. Problems with student discipline and motivation are widely cited, as was a lack of support from school administration. As we note in the concluding section, these are complex features of the school environment, but may be appropriate targets for policies designed to improve student behavior and to enhance the capacity of the school's administration to support the teachers in a given school.

Leaving teaching as a career.

In general, the set of factors we asked teachers to rate the importance of in their consideration of leaving teaching as a career were less salient to them than the factors rated by teachers considering leaving their current school. Figure 6 displays the percentage of teachers indicating that a given factor was very important or important, with the factors listed in descending order of importance. The most important factor, based on teacher's responses, was general dissatisfaction with the profession, which is a non-specific source of dissatisfaction. 31 percent of teachers indicating that they had considered leaving teaching during the 2009-10 school year rated this general dissatisfaction as very important, and more than half (58 percent) judged it as very important or important. Four additional factors were rated as very important by approximately one-quarter of the responding teachers and as very important or important by approximately one-half of teachers: wanting to pursue a position in education outside of the classroom; wanting to make more money; wanting a career with more opportunities for advancement; and wanting to pursue a career outside of education.

Figure 6.

Importance of Factors in Considering Leaving Teaching Profession



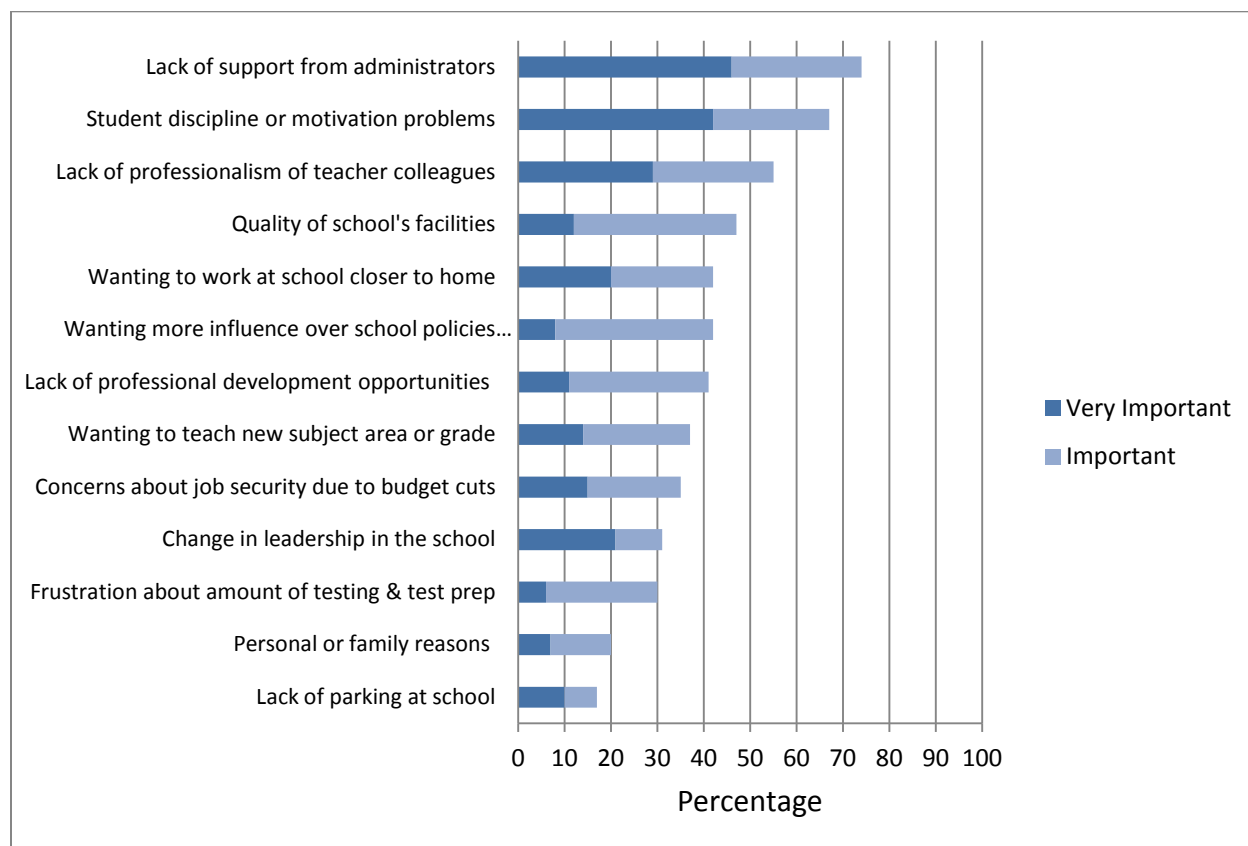
The remaining seven factors, although important to a subset of teachers, did not reflect widespread endorsement as reasons to consider leaving teaching. From 6 percent to 15 percent rated these factors as very important, which is a relatively small proportion, and in every case more than one-half of all responding teachers rated these factors as not at all important. In descending order of the percentage rating a factor as a very important or important consideration, these are: wanting a more prestigious job; wanting to work closer to home; other family or personal reasons; wanting to retire; wanting better health or retirement benefits; personal health concerns; and pregnancy/childrearing. These factors may be relevant to specific subsets of the population of New York City middle school teachers, but they are not endemic concerns.

Some subgroups of teachers are particularly sensitive to specific reasons for leaving teaching. Teachers with more than 15 years of experience—who, by virtue of their experience, also are likely to be older than their peers—are much more likely to cite wanting to retire as an important factor than are other teachers (59 percent vs. 11 percent). They also are less likely to rate a desire for a position outside of the classroom or wanting more opportunities for advancement as important than are less-experienced teachers. Teach for America teachers who are considering leaving teaching are more prone to report that the desire for a career outside of education and wanting a career with more opportunities for advancement are important factors than are other teachers (65 percent vs. 44 percent, and 59 percent vs. 45 percent, respectively). And, not surprisingly, teachers with longer commutes to work are much more likely to identify wanting to work closer to home as an important factor in thinking about leaving. But for the most part, there are not many systematic patterns distinguishing the factors important to some teachers and not others. This list of factors provides little to go on in devising policies which might promote the retention of New York City middle school teachers in the occupation of teaching.

As a final check on the relative importance of various factors spurring teachers to transfer to other schools, we examined the responses of those teachers in our sample who reported that they had taught in a different school in 2009-10, and had transferred voluntarily to their current school. (Most of these teachers taught in a New York City public school in the previous year, but a small fraction had taught in other public schools in New York state or elsewhere or in a private school.) We invited these teachers to rate the importance of 13 different factors in their decision to change schools—the same factors reported in Figure 5, with the exception of "wanting to leave teaching altogether," as that seemed logically inconsistent for teachers who had successfully moved from one school to another. These factors are displayed in Figure 7.

Figure 7.

Total Sample: Importance of Factors for Voluntary School Changers



The factors important to those teachers in the sample who reported transferring voluntarily to a New York City middle school after the 2009-10 school year echo those described earlier. Lack of support for administrators and student discipline or motivation problems are the most salient factors cited by teachers, with three-quarters rating administrative support as important, and two-thirds rating student behavior problems as influential. The only other reason cited by at least 50 percent of the respondents was a lack of professionalism among teacher colleagues.

X. INTERPRETIVE SUMMARY

Our analyses share some similarities with other studies of teacher turnover, but they differ in important ways as well. At the beginning of the project, we anticipated that New York City middle school teachers would be especially sensitive to differences among the schools in which they taught, seeking to stay in schools which they felt functioned well, and to leave those in which they perceived disorganization, disorder and a lack of leadership. Other studies have pointed to the school as an organization and a workplace as factors influencing where teachers choose to teach, including their plans to leave their schools and their school-leaving behaviors.

When we considered a host of school organizational factors simultaneously, we were surprised to find that few, if any, stood out. We came to understand that considering all of the factors simultaneously masked their potential importance; because these organizational and workplace measures are correlated with one another—schools are often high or low on several attributes simultaneously—we were unable to isolate their separate effects on the probability that a teacher might consider leaving his or her classroom. But when we considered these factors one at a time, adding them to what we had learned from the influence of individual teacher characteristics and school demographic factors, we found that most of them did appear influential.

There is, therefore, an inherent ambiguity in our results: The organization and functioning of New York City middle schools does matter, but our results do not provide a clear roadmap for where to start in addressing these factors. We believe that the best bet is to focus on two features of the school as a workplace where we observed large differences among schools: principal leadership and school disorder. The two factors themselves go hand-in-hand: the schools where teachers report positive leadership tend to be the schools where teachers report less disorder. And more positive leadership and lower levels of disorder also are associated with the student body composition of a school, with lower rates of disorder and more positive perceptions of leadership often found in schools with lower rates of poverty and lower concentrations of Black students.

Our view that principal leadership and school disorder are key to improving school functioning to support teacher retention is buttressed by the fact that the two most salient reasons cited by teachers considering leaving their current schools are student discipline or motivation problems and a lack of support from administrators. But the data that we have examined in this report do not identify particular policy strategies to address teachers' perceptions that leadership in their schools is lacking, or that students are too unruly and unmotivated. There are many such policy alternatives available, but choosing judiciously among them requires more information than is available here.³⁸

For example, there are multiple possible approaches to addressing teachers' concerns that students are poorly behaved and unmotivated. One is to target the students themselves, seeking

to understand the sources of their behavior and motivation issues and to craft policies to address them. But a quite different strategy would be to formulate policies intended to shape teachers' perceptions, perhaps enabling them to define students' behavior and motivation as less central to their day-to-day experience of this school. Yet another approach would be to concentrate professional development on supporting teachers to change and respond to students' behavior in and out of the classroom. These examples are not intended as specific suggestions for education policy, but rather are offered to illustrate the range of policy approaches available to address teachers' concerns. A similar array of policy alternatives could be generated to respond to teachers' perceptions that the leadership of their school is not supportive, or is lacking in other ways.

The other major conclusion we draw is that the rhythms of teachers' lives have a great deal to do with whether they consider leaving their current classrooms. Teachers enter teaching from different routes, and at different times in their lives, and their personal circumstances are associated with their thoughts of staying in their current classrooms or leaving. Teachers entering teaching from non-traditional pathways, such as the New York City Teaching Fellows or Teach For America, have elevated rates of considering leaving, which have been shown in other studies to presage the choice to leave the classroom. This tendency, which is frequently observed among teachers early in their careers, suggests renewed attention to the importance of how teachers are inducted into teaching, and the supports and mentoring they receive early in their careers. Mentoring and professional development may be beneficial at all stages of the teaching career, but especially so at its inception. It may be helpful to clarify the expectations about the shared responsibilities of the organizations shepherding teachers through these alternative pathways and of the New York City Department of Education to create a meaningful induction system for new teachers—especially if a substantial number of teachers new to the district are entering via these pathways.

Although we find that teachers who have experienced marital disruption, and those who have dependent children, are less likely to consider leaving than those who have never married and do not have children, everything else being equal, these findings do not point to particular policies regarding salary and benefits. Teachers who view their financial situations as vulnerable may be less willing to consider leaving their classrooms, and this may be a rational decision in a tight labor market with few opportunities for movement into other positions with substantially higher wages, whether in teaching or in other occupations.

We also see clear evidence that teachers who are teaching a new subject are more likely to consider leaving than those who are not. This finding speaks to the importance of ensuring a good match between a teacher's pedagogical background and his or her current teaching assignment. This can be challenging in the face of budget cuts which have reduced staffing levels in many New York City schools.

Finally, we note the power of interpersonal influence. Teachers in schools where most of their colleagues report that their friends and family encourage them to stay in their current schools are less likely to consider leaving their classrooms than are those in schools where teachers' inner circles do not offer such encouragement. Teachers respond to the views of people they trust. Policies focused on persuading stakeholders in a particular school that it is a desirable place to work could lead those close to teachers to encourage them to stay in their current classrooms. This kind of outreach effort would likely be most successful if the persuasion were rooted in actual improvements in the working conditions which seem to matter most to teachers—a responsive and supportive leadership team, and a motivated student body which arrives ready to learn.

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16. Similar methods have been used in these studies: Buckley, J., M. Schneider, and Y. Shang. 2005. "Fix it and they might stay: School facility quality and teacher retention in Washington, DC." *Teachers College Record* 107 (5):1107-1123, and Ladd, Helen F. 2011. "Teachers' Perceptions of Their Working Conditions: How Predictive of Planned and Actual Teacher Movement?" *Educational Evaluation and Policy Analysis* 33 (2):235-261.
17. Data from the federal Schools and Staffing Survey indicate that the average teacher has 13 years of full-time teaching experience, and 48 percent of public school teachers hold a bachelor's degree. New York City middle school teachers are, therefore, perhaps a bit less experienced on average, but many more hold advanced educational credentials.
18. The adjusted percentages are based on the predicted values for a multinomial logistic regression with teacher-level and school-level predictors and standard errors which take the clustering of teachers within schools into account. Details of the equations which generate these predicted values are reported in Appendix D.
19. The pattern observed here differs somewhat from that reported by Marinell (2011), who found the highest proportion of middle school teachers leaving their schools within three years among teachers with three years or less of experience in New York City schools, and the lowest three-year turnover rate among teachers with more than nine years of experience. Marinell also found a high three-year turnover rate among teachers older than 55 years of age. These differences may be accounted for by the more fine-grained experience categories available in the current study and by the distinction between considering leaving and actual patterns of departure.

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23. See, e.g., Boyd, Don, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff. 2010. The Effects of School Neighborhoods on Teacher Career Decisions. In *New Evidence on How Families, Neighborhoods and Labor Markets Affect Educational Opportunities for American Children*. Washington, DC; Boyd, Donald, Hamilton Lankford, Susanna Loeb, and James Wyckoff. 2005. "The Draw of Home: How Teachers' Preferences for Proximity Disadvantage Urban Schools." *Journal of Policy Analysis and Management* 24 (1):113-132.
24. As we report later, relatively few teachers report wanting to work closer to home as an important factor in thinking about leaving teaching altogether.
25. These school averages are estimates whose precision is influenced by the number of teachers in each school, and many of the differences among the schools in this range could be due to chance. In a school with 30 teachers, for example, if two more teachers reported that they had considered leaving, the school's average percentage would increase by about seven percentage points.
26. These figures are based on the standard formula for decomposition of variation in a two-level multinomial logistic regression, which assumes that the residual variance is fixed at 3.29.
27. The demographic data are drawn from the CEP School Demographics and Accountability Snapshot for the 2009-10 school year.
28. We also conducted a series of LaGrange Multiplier or score tests comparing the fit of logistic regression models before and after each characteristic was added as an independent variable. These tests indicated that all three school academic profile variables were unnecessary for the model specification. Since we could drop these factors from the model

without adding to any omitted variable bias, we did so in order to attenuate collinearity problems in the demographic measures.

29. Percent suspensions was significant in its continuous form, the highest quartile dummy variable was significant, and there was an eight percentage point difference across the quartile categories. Thus, even though the three quartile dummies were not jointly significant, we decided to report the adjusted probability estimates. Suspension rate is the only demographic characteristic for which we relaxed our reporting criteria.
30. See e.g., Boyd, Donald, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckhoff. 2010. "The Role of Teacher Quality in Retention and Hiring: Using Applications of Transfer to Uncover Preferences of Teachers and Schools." *Journal of Policy Analysis and Management* 30 (1): 88-110.
31. See e.g., Boyd, Donald, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, & James Wyckhoff. 2010.
32. Ferguson, Ann. 2001. *Bad boys: Public schools in the making of black masculinity*. Ann Arbor, MI: University of Michigan Press.
33. Although the differences in the probability of considering leaving differ significantly across the four quartiles for professional control, the pattern is not monotonic, and therefore is not noted in the body of the report.
34. The estimated probabilities reported on the right side of each figure are predicted by a multi-level, mixed-effects logistic regression model including one school-level workplace characteristic and the full sets of significant teacher characteristics and school demographics discussed in the previous sections. Although borough dummies were not jointly significant, we kept them in the model to adjust for Staten Island's influence. We chose to estimate the impact of workplace measures one at a time due to collinearity in models including multiple workplace measures. Some workplace measures found to have a large impact when added individually no longer met our criteria for significance and practical important when included in fuller models. This does not, however, reflect poor or spurious predictive power, but rather inflated standard errors masking their effect on teachers' thoughts about leaving. This suggests that some of our workplace characteristics measure overlapping or related constructs, but does not imply the characteristics do not matter. It is important to note, however, that because of the likelihood of overlapping constructs, summing estimates from the different models for each characteristic is not an appropriate method for estimating cumulative impacts of multiple workplace characteristics.
35. See, e.g., Boyd, Donald, Pam Grossman, Marsha Ing, Hamilton Lankford, Susanna Loeb, and James Wyckhoff. 2011. "The Influence of School Administrators on Teacher Retention Decisions." *American Educational Research Journal* 48 (2): 303-333; Grissom, Jason A. 2011. "Can Good Principals Keep Teachers in Disadvantaged Schools: Linking Principal Effectiveness to Teacher Satisfaction and Turnover in Hard-to-Staff Environments."

Teachers College Record 113 (11):2552-2585; Johnson, Susan Moore, Matthew A. Kraft, and John P. Papay. 2011. How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. Cambridge, MA: Harvard University; Ladd, Helen F. 2011. "Teachers' Perceptions of Their Working Conditions: How Predictive of Planned and Actual Teacher Movement?" *Educational Evaluation and Policy Analysis* 33 (2):235-261.

36. There is a moderate correlation between the suspension rate considered in the previous section and the schoolwide teacher measure of school disorder.
37. Ingersoll, Richard. M., and Michael Strong. 2011. "The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research." *Review of Educational Research* 81 (2):33.
38. It is quite likely that the data gathered in the case-study component of this project will yield such insights.

Appendix A. Correlations among School Demographic Characteristics (N=125)

	Attendance	Stability	Poverty	% Overage	% Black	% Hispanic	% Asian	% White	% Special Ed	% ELL	% Suspend	Avg median proficiency
Attendance	1.000											
Stability	.500	1.000										
Poverty	-.444	-.450	1.000									
% Overage	-.749	-.656	.498	1.000								
% Black	-.326	-.153	.156	.233	1.000							
% Hispanic	-.260	-.163	.449	.333	-.568	1.000						
% Asian	.557	.114	-.213	-.468	-.447	-.273	1.000					
% White	.481	.412	-.776	-.512	-.417	-.372	.331	1.000				
% Special Ed	-.485	-.219	.187	.462	.158	.215	-.383	-.280	1.000			
% ELL	-.245	-.578	.488	.464	-.436	.638	.046	-.296	.013	1.000		
% Suspended	-.247	-.156	.191	.218	.143	.035	-.183	-.139	.371	.025	1.000	
Avg mdn proficiency	.783	.600	-.635	-.730	-.404	-.311	.549	.697	-.564	-.368	-.339	1.000

Appendix B. School Workplace Scale Characteristics

Teacher collegiality ($\alpha = .87$, ICC = .12)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

Teachers in this school trust each other.

It feels safe in this school to discuss my feelings, worries, and frustrations about my job with my teacher colleagues.

Teachers at this school recognize and respect colleagues who are the most skillful teachers.

Teachers at this school make a conscious effort to support colleagues who are new to the school and/or new to the teaching profession.

Principal leadership ($\alpha = .94$, ICC = .25)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

The principal at this school is knowledgeable about instruction and is an effective instructional leader.

The principal is an effective manager who makes the school run smoothly.

The principal enforces school rules regarding student conduct and supports teachers' efforts to maintain order in their classrooms.

It feels safe in this school to discuss my feelings, worries, and frustrations about my job with my principal.

The principal looks out for the personal welfare of the faculty members.

The principal has established or strengthened collaborations with organizations (such as community groups, colleges or universities, local businesses, or parents' associations) that help us accomplish our goals.

The principal solicits, and genuinely values, teachers' input when considering making substantial changes at the school.

Parent support ($\alpha = .82$, ICC = .10)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

My students' parents support my efforts as a teacher.

The parents of the students at this school have confidence in the expertise of our faculty and administration.

I feel respected by the parents in this school.

Collective responsibility ($\alpha = .93$, ICC = .09)

(None or Very Few=1; Some=2; About Half=3; Many=4; All or Nearly All=5)

How many teachers in this school:

Set high standards for themselves

Help maintain discipline in the entire school, not just their classrooms

Take responsibility for improving the school

Know their subjects really well

Take responsibility for ensuring that all students learn

Take responsibility for helping students develop self-control or self-regulation skills

Ensure that other teachers are successful

Control over professional responsibilities ($\alpha = .83$, ICC = .16)

(No Control=1; Minor Control=2; Moderate Control=3; A Great Deal of Control=4)

Selecting textbooks and other instructional materials

Selecting content, topics and skills to be taught

Selecting teaching techniques

Evaluating and grading students

Determining standards for student behavior

Determining the content for faculty professional development or in-service programs

Determining the focus of the curriculum in your content area

Hiring teachers in your school
Deciding teacher assignments
Selecting or evaluating administrators

Frequency of professional development ($\alpha = .65$, ICC = .09)

(Never=1; Once or Twice This School Year=2; About Once a Month=3; About Once a Week=4; More than Once a Week=5)

Had a fellow teacher observe your teaching
Visited other teachers' classrooms to observe instruction
Been observed by your principal
Been observed by an administrator at your school other than the principal
Met with colleagues during the school day to discuss your teaching practice
Attended a professional development program offered by your school

Satisfaction with professional development ($\alpha = .90$, ICC = .11)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

Most of what I learn in the professional development activities offered at my school helps me to address the needs of my current students
The professional development activities at my school have been sustained and coherently focused, rather than short-term and unrelated.
My professional development activities include enough time to think carefully about, try, and evaluate new ideas.
At this school, I feel like I am a member of a professional learning community that supports my growth as a teacher.

School disorder ($\alpha = .93$, ICC = .43)

(Not a Problem=1; Slight Problem=2; Moderate Problem=3; Major Problem=4)

Physical conflicts among students
Robbery or theft
Vandalism
Gang activity
Disorder in classrooms
Disorder in hallways
Student disrespect of teachers
Student disrespect of their peers
Threats of violence toward teachers
Student absenteeism

Adequacy of resources ($\alpha = .76$, ICC = .11)

(Not a Problem=1; Slight Problem=2; Moderate Problem=3; Major Problem=4)

Lack of necessary materials, such as textbooks, supplies and copy machines (reverse-coded)
There are adequate physical spaces in my school (e.g. a department office or teachers' lounge) for teachers to prepare lessons and discuss instruction
The student support services offered at this school (e.g. social workers, guidance services, speech therapists, etc.) are adequate and effective.
The teacher support services offered at this school (e.g. subject specialists or coaches, paraprofessionals, in-class volunteers, etc.) are adequate and effective
The classroom supplies that I have access to are adequate in order to do my job well.

Induction (ICC=.11)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

This school has an effective induction plan or program to support new teachers.

Peer Influence (ICC=.12)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

Most of the people who are important to me think that I should stay in this school.

Teacher Efficacy (ICC=.05)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

Overall, I feel like I am an effective teacher and that I am successful in my efforts at this school.

Personal Ties to Students (ICC=.02)

(Strongly Disagree=1; Somewhat Disagree=2; Somewhat Agree=3; Strongly Agree=4)

I identify with my students and believe we have a strong personal connection.

Note: ICC refers to the fraction of the variation in individual teachers' responses which is between schools.

Appendix C. Correlations among School Workplace Measures (N=125)

	Teacher collegiality	Principal leadership	Parental support	Collective responsibility	School disorder	Professional control	Freq of prof Development	Satisfaction w/ prof development	Adequacy of resources	Induction	Peer encourage	Teacher self- efficacy
Teacher collegiality	1.000											
Principal leadership	.581	1.000										
Parental support	.422	.408	1.000									
Collective responsibility	.705	.578	.542	1.000								
School disorder	-.455	-.559	-.721	-.683	1.000							
Professional control	.499	.382	.334	.385	-.421	1.000						
Frequency of prof development	.109	.182	.073	.128	.049	.170	1.000					
Satisfaction w/ prof development	.445	.570	.246	.478	-.194	.237	.513	1.000				
Adequacy of resources	.335	.460	.469	.467	-.508	.275	.034	.439	1.000			
Induction	.481	.682	.332	.570	-.422	.136	.104	.568	.684	1.000		
Peer encouragement	.493	.613	.474	.570	-.624	.241	-.039	.390	.565	.586	1.000	
Teacher self-efficacy	.198	.401	.372	.410	-.453	.090	.050	.257	.364	.454	.558	1.000
Connection with students	.293	.396	.598	.497	-.606	.245	-.067	.111	.366	.374	.451	.541

Appendix D. Detailed Mixed-Effects Logistic Regression Results

Predictor	(1)	(2)	(3)	(4)	(5)	(6)
New grade level		-.214*	-.203	-.192	-.202	-.195
New subject		.550***	.522***	.521**	.515***	.522***
0-1 yrs experience		-.986***	-1.001***	-1.005***	-1.003***	-1.009***
1-3 yrs experience		-.201	-.207	-.221	-.196	-.204
4-5 yrs experience		.034	-.019	.000	-.002	-.021
11-15 yrs experience		-.071	-.101	-.106	-.107	-.097
15+ yrs experience		-.330**	-.346**	-.352**	-.357**	-.345**
20-40 min commute		.239*	.177	.177	.166	.180
40-60 min commute		.335**	.258*	.273*	.256*	.256*
60+ min commute		.579***	.484***	.459***	.455***	.475***
MA and MA+30		.064	.084	.086	.068	.093
Doctoral degree		.835**	.798*	.808*	.775	.809*
Domestic partner		.009	.004	.014	.011	.009
Married		-.321**	-.309**	-.295**	-.300**	-.308**
Divorced		-.409*	-.419*	-.398*	-.405*	-.411*
Separated		-.892**	-.914**	-.895**	-.931**	-.930**
Widowed		-.984**	-.989**	-.995**	-.947**	-.979**
N of children		-.162***	-.150**	-.159***	-.158***	-.151**
NYCTF		.503***	.436***	.419***	.450***	.438***
TFA		1.046***	.937***	.925***	.941***	.988***
Tchr Op Prog		-.223	-.228	-.250	-.243	-.217
Other alt cert		.328	.292	.298	.298	.284
Gender		.068	.098	.115	.103	.097
Black		.094	-.123	-.115	-.136	-.111
Asian		.083	.045	.020	.037	.042
Hispanic		.231	.123	.117	.105	.130
other race		.240	.158	.157	.142	.161
NYC HS graduate		-.039	.032	.013	.024	.022
Pct Poverty			-.010*	-.012**	-.010	-.011*
Pct Black			.016***	.014***	.015***	.014***
Pct Hispanic			.013***	.013***	.011***	.011**
Total enrollment			-.000*	.000	-.000*	-.000*
Pct Suspensions			1.289**	1.359**	1.277**	.934
Brooklyn			-.129	-.105	-.161	-.147
Queens			-.129	-.172	-.116	-.151
Bronx			-.154	-.082	-.050	-.115
Staten Island			-.501*	-.492*	-.461*	-.634*
Principal leadership, q2				-.409**		
Principal leadership, q3				-.441**		
Principal leadership, q4				-.780***		
Tchr collegiality, q2					-.111	
Tchr collegiality, q3					-.353**	
Tchr collegiality, q4					-.568***	
Parental support, q2						-.068
Parental support, q3						-.244
Parental support, q4						-.350*
Constant	-.278***	-.347	-.441	.025	-.044	.069
LL	-2540.04	-1897.48	-1863.49	-1848.05	-1853.18	-1860.610
df	2	30	39	42	42	42
BIC	5096.66	4035.61	4039.82	4033.01	4043.27	4058.13

Note: * p<.05; ** p<.01; *** p<.001

Predictor	(7)	(8)	(9)	(10)	(11)
New grade level	-.189	-.190	-.206*	-.205	-.199
New subject	.518***	.514***	.517***	.521***	.518***
0-1 yrs experience	-.985***	-1.019***	-1.003***	-.994***	-.983***
1-3 yrs experience	-.202	-.21	-.200	-.208	-.213
4-5 yrs experience	-.016	-.021	-.001	-.018	-.019
11-15 yrs experience	-.100	-.110	-.105	-.1	-.094
15+ yrs experience	-.342**	-.368**	-.353**	-.346**	-.341**
20-40 min commute	.168	.168	.189	.178	.176
40-60 min commute	.250*	.257*	.268*	.258*	.260*
60+ min commute	.450***	.465***	.490***	.485***	.477***
MA and MA+30	.078	.090	.074	.085	.097
Doctoral degree	.785*	.811*	.757*	.796*	.814*
Domestic partner	.006	.008	.033	.004	.007
Married	-.301**	-.314**	-.286**	-.307**	-.295**
Divorced	-.400*	-.407*	-.387*	-.418*	-.404*
Separated	-.911**	-.939**	-.894**	-.915**	-.892**
Widowed	-.956**	-.998**	-.965**	-.989**	-.975**
N of children	-.154**	-.151**	-.162**	-.150**	-.155**
NYCTF	.451***	.439***	.439***	.435***	.437***
TFA	.938***	.991***	1.007***	.938***	.972***
Tchr Op Prog	-.195	-.246	-.225	-.236	-.2
Other alt cert	.290	.280	.317	.293	.288
Gender	.108	.098	.104	.099	.1
Black	-.097	-.127	-.118	-.123	-.104
Asian	.041	.032	.065	.048	.064
Hispanic	.125	.116	.129	.122	.132
other race	.168	.141	.168	.155	.17
NYC HS graduate	.031	.024	.019	.03	.031
Pct Poverty	-.010*	-.012**	-.009*	-.009**	-.007
Pct Black	.012***	.010**	.014***	.016***	.015***
Pct Hispanic	.010**	.009*	.012***	.013***	.012***
Total enrollment	-.000**	-.000*	-.001***	.000	-.000*
Pct Suspensions	.964*	1.000*	1.016*	1.309**	1.228**
Brooklyn	-.097	-.069	-.209	-.138	-.1
Queens	-.081	-.131	-.296	-.134	-.155
Bronx	-.108	-.078	-.194	-.154	-.163
Staten Island	-.395	-.601*	-.591**	-.520*	-.447
Collective responsibility, q2	-.003				
Collective responsibility, q3	-.352**				
Collective responsibility, q4	-.482**				
School disorder, q2		.219			
School disorder, q3		.390*			
School disorder, q4		.595***			
Professional control, q2			-.368**		
Professional control, q3			-.529***		
Professional control, q4			-.660***		
PD frequency, q2				-.090	
PD frequency, q3				-.027	
PD frequency, q4				-.040	
PD satisfaction, q2					-.227
PD satisfaction, q3					-.321*
PD satisfaction, q4					-.615***
Constant	.159	-.149	.258	-.415	-.301
LL	-1855.30	-1856.57	-1852.54	-1863.26	-1853.36
df	42	42	42	42	42
BIC	4047.50	4050.64	4041.98	4063.43	4043.63

Note: * p<.05; ** p<.01; *** p<.001

Predictor	(12)	(13)	(14)	(15)	(16)
New grade level	-.189	-.186	-.192*	-.204*	-.208*
New subject	.502***	.499***	.510***	.522***	.527***
0-1 yrs experience	-.969***	-.976***	-1.013***	-1.009***	-.982***
1-3 yrs experience	-.220	-.208	-.216	-.218	-.207
4-5 yrs experience	-.016	-.023	-.025	-.02	-.017
11-15 yrs experience	-.095	-.088	-.099	-.108	-.100
15+ yrs experience	-.344**	-.342**	-.328**	-.349**	-.360**
20-40 min commute	.175	.175	.164	.167	.178
40-60 min commute	.263*	.249*	.255*	.254*	.252*
60+ min commute	.471***	.472***	.439**	.462***	.476***
MA and MA+30	.084	.088	.087	.077	.102
Doctoral degree	.836**	.804*	.815**	.818**	.800*
Domestic partner	.012	-.004	.020	-.002	.009
Married	-.294**	-.300**	-.306**	-.304**	-.305**
Divorced	-.397*	-.404*	-.392*	-.417*	-.415*
Separated	-.908**	-.912**	-.939**	-.904**	-.905**
Widowed	-.965**	-.961**	-.974**	-.917**	-.952**
N of children	-.151**	-.149**	-.155**	-.146**	-.151**
NYCTF	.426***	.410***	.416***	.399***	.438***
TFA	.983***	.961***	.979***	.947***	.996***
Tchr Op Prog	-.269	-.258	-.249	-.273	-.243
Other alt cert	.290	.275	.279	.268	.286
Gender	.093	.097	.098	.094	.103
Black	-.104	-.115	-.119	-.124	-.104
Asian	.030	.049	-.01	.022	.029
Hispanic	.125	.136	.108	.126	.139
other race	.154	.145	.166	.159	.167
NYC HS graduate	.023	.018	.023	.011	.023
Pct Poverty	-.009*	-.009*	-.012**	-.011**	-.010*
Pct Black	.013***	.011***	.009**	.012***	.013***
Pct Hispanic	.010**	.009**	.009**	.009**	.011**
Total enrollment	.000	.000	.000	.000	-.000*
Pct Suspensions	1.488***	1.464***	.970*	1.051*	1.108*
Brooklyn	-.168	-.130	-.032	-.160	-.147
Queens	-.255	-.233	-.135	-.162	-.140
Bronx	-.182	-.169	-.073	-.186	-.192
Staten Island	-.653**	-.645**	-.456*	-.599**	-.635*
Induction, q2	-.138				
Induction, q3	-.258				
Induction, q4	-.627***				
Resources, q2		-.213			
Resources, q3		-.339*			
Resources, q4		-.655***			
Peer encouragement, q2			-.340**		
Peer encouragement, q3			-.390**		
Peer encouragement, q4			-.873***		
Teacher efficacy, q2				-.266*	
Teacher efficacy, q3				-.417**	
Teacher efficacy, q4				-.757***	
Student connection, q2					-.185
Student connection, q3					-.450**
Student connection, q4					-.460**
Constant	-.136	.122	.553	.394	.019
LL	-1852.98	-1853.26	-1848.03	-1852.47	-1857.01
df	42	42	42	42	42
BIC	4042.87	4043.43	4032.96	4041.85	4050.92

Note: * p<.05; ** p<.01; *** p<.001

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